THE Journal OF THE

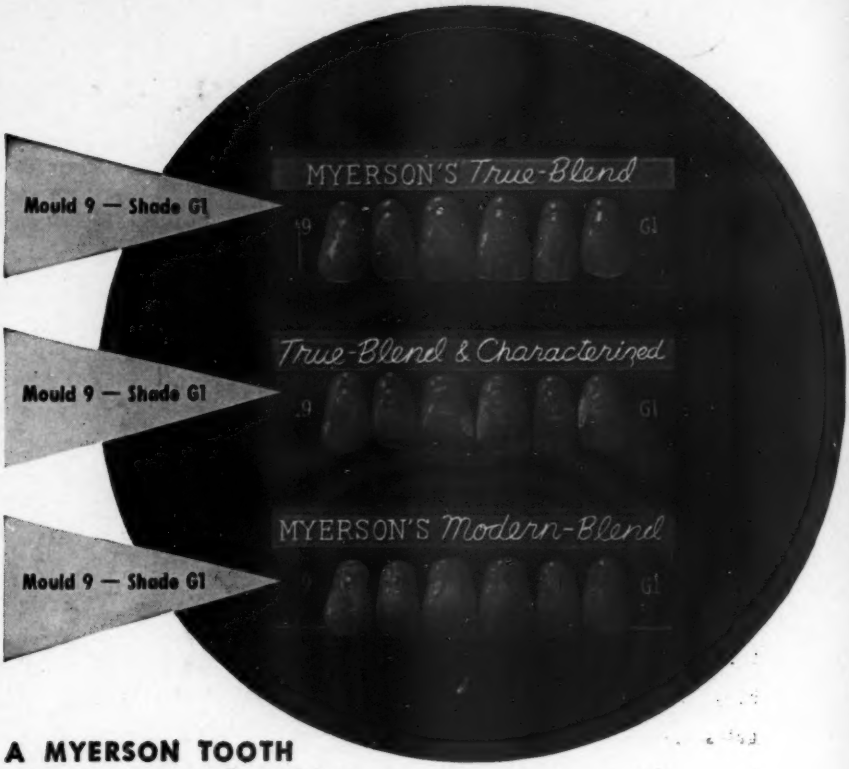
AMERICAN DENTAL ASSOCIATION

SEPTEMBER 1, 1947 • VOLUME 35 • NUMBER 5

CONTENTS

President's Address to House of Delegates....*Mead*....309
Caries in Abutting Tooth Surfaces.....*Losee*....323
Higher Education in Dentistry.....*Lyle*....327
Studies on Density of Castings.....*Phillips*....329
Determining Vertical Dimension.....*McGee*....342
Editorials.....351
Report of Eighty-Eighth Session of A.D.A.....360
Report of Tenth International Dental Congress.....366
News of Dentistry.....368
Council on Dental Therapeutics.....370
Committee on Legislation.....379
Book Reviews.....382
Cases and Comments.....388
Army Dental Corps Separations.....391
Deaths.....393
Directory.....394
Announcements.....396

a new system of tooth selection



A MYERSON TOOTH FOR EVERY AGE GROUP

True-Blend — for the forty-plus patients who desire natural-looking restorations and often, too, for younger more rugged-looking patients.

Characterized — strongly indicated for those who have recently had a number of fillings in their anterior teeth.

Modern-Blend — for younger patients and female patients whose natural teeth have not been made rugged and stained by wear or aging, and the many who wish to add youthfulness to their appearance.

Remember, only with this simple, scientific system can you select a mould and shade for your patient and have that mould and shade in any one of these three lines, individualized according to your patient's requirements.

Send for 20 page booklet describing this newest Myerson development.

MYERSON TOOTH CORPORATION • CAMBRIDGE 39, MASS.

Formerly Ideal Tooth Incorporated

The Journal of the American Dental Association, Vol. 35, No. 5. Published by the American Dental Association, 222 E. Superior St., Chicago 11, Ill. Yearly subscription $7.00 for U. S. and possessions; $8.00 for foreign countries. Single copy forty cents. Entered as second-class matter, May 27, 1942, at the postoffice at Chicago, Ill., under the act of August 24, 1912. Published semimonthly. Copyright 1947 by the American Dental Association. The Journal of the American Dental Association is indexed in the Index to Dental Literature and, in part, in the Quarterly Cumulative Index Medicus, Biological Abstracts and Chemical Abstracts.

THE Journal OF THE AMERICAN DENTAL ASSOCIATION

SEPTEMBER 1, 1947 • VOLUME 35 • NUMBER 5

PRESIDENTIAL ADDRESS TO HOUSE OF DELEGATES

Sterling V. Mead, D.D.S., M.S., Washington, D.C.

ALTHOUGH I have been interested in the work of all the committees of the American Dental Association and have participated actively in many functions, this report does not presume to cover the activities of the various committees as these will be reported in detail by each committee chairman.

It is the purpose of this report to review some of the problems in which I have taken an active part and to emphasize some of the contemplated activities of the Association. Many of the statements and views expressed here may not necessarily represent the views of the American Dental Association or of some states or persons.

Dentistry for Children

Dental health services must be extended to more children as only a fraction of the nation's children are now receiving adequate dental care and treatment. Extension of good dental care to all children is the most important problem of the profession today.

Every practitioner has a direct personal responsibility in this problem. It is important that all children receive full recognition from all dentists, particularly the general practitioner. A satisfactory solution to the problem of providing adequate dental care for all children must, of necessity, involve the individual dentist. It is no secret that at present a majority of dentists are not devoting a just share of their time to dentistry for children. There are many successful practitioners who have large numbers of children of various ages among their patients. The success of these dentists speaks for itself. I believe that no dentist can be justified in rejecting the young patients. Above all other considerations, there is a moral responsibility of the dentist to devote a fair share of his time to protect the dental health of the children in his community.

The first step in the solution of the problem, then, is the enrollment of every general practitioner, and every specialist as well, in a campaign to provide more dental health service to children in his community. Several studies indicate that

Read at the eighty-eighth session of the American Dental Association, Boston, August 4, 1947.

we would go a long way toward solving the entire problem if each dentist gave approximately 10 per cent of his time to the care of children.

A second step which the dentist should take is to make a thorough appraisal of the dental needs of the children in his community and the facilities available for dental care. This study should be followed by the formation of a planned local program to make dental health service available to each child. In all instances, such a program should be on the widest possible base, with the community sharing responsibility with the profession. Without concerted action by members of the profession in their home communities in the formation of sound and practical programs, such legislative patterns will be meaningless.

Under the present plans of the American Dental Association, it is proposed that practical dental care programs for children be within the reach of all communities. In many communities such programs are already in operation.

A high type of service to an intelligent public presages an increased appreciation of the dentist's services which can very well be translated into adequate reward, professionally and financially. The intelligent parent will appreciate meticulous and painstaking service for his children. Such a parent can and will understand that the dentist who provides that care is entitled to the same rate of compensation for his time and service, regardless of whether he treats children or adults.

The American Dental Association has for many years given its attention to the need for an adequate dental care program for children. The Council on Dental Health has decided at this time to embark on a concentrated program to utilize its national and state councils, which are well organized, in an effort to get each local dental society to form a committee on dentistry for children.

Although it is recognized that facilities are now available through the national and state councils on dental health to give consideration to dentistry for children, the efforts of these councils will be of little value unless similar councils or committees are formed in every community to carry out the purpose of the program; namely, the provision of more and better dentistry for children.

The dental director of the local health agency should be a member of the committee of the local dental society responsible for dentistry for children. Every dental society should assume its full share of the responsibility for providing training courses in child management and in operative procedures for practicing dentists.

In order to assure the fullest possible success of community dental programs for children, the local dental society should take every means possible to secure the counsel, advice and cooperation of other interested groups; for example, the Parent-Teacher Association, representatives of the local school system, civic organizations, service clubs and church clubs. If the dental profession has committed any error in the past in the organization of community programs, it has been in not securing the confidence and cooperation of responsible lay groups in the community. Such lay groups should not only have a voice in the health programs in the community but should also be given a share of the responsibility in making more extensive dental service available for children.

Eventually this problem can be met by early indoctrination of students in dental school in the principles and methods of dentistry for children. Under the present system, the dental student is allowed to pay too little attention to children. His main desire is to obtain sufficient credits for passing. The school is anxious to confine its teaching to requirements of state boards of dental examiners which are not as much interested in the student's ability and training along this

line as in other lines. Schools and state boards should see that every dental graduate has a thorough training in the basic principles of dentistry for children.

Prosthetic Dental Laboratories

An immediate task facing the dental profession is solution of the prosthetic dental laboratory problem. The dental laboratories are essential and are a definite adjunct to the profession.

Of particular import is the problem of establishing acceptable standards of education and training for the technician. This problem has been thrust into the foreground by the mushroom growth of trade school courses in prosthetic dentistry under the government's training program for veterans. In nearly every state of the union, schools for dental technicians are operating with large enrollments. Most of the students are veterans. There should be some method to determine if all of these schools have the personnel and facilities for doing a good job. Adequate standards have been established by the Council on Dental Education.

Licensure for technicians, accreditation of laboratories, establishment of a code of acceptable standards for workmanship and materials and elimination of illegal practice by laboratories are other problems in which the dental profession has basic interests. The advice and suggestions of all laboratory groups will be carefully considered. It may be that a unified laboratory group could be established as an affiliate of the American Dental Association. There is no question but that there would be closer relations and a freer exchange of ideas between the profession and the craft if the latter were granted some sort of official recognition by organized dentistry.

The Committee on Prosthetic Dental Service has accomplished much, and its work will, no doubt, lead to complete understanding.

Dental Hygienists

The dental hygienist has become a firmly established ancillary aid to dentists. Dentistry has been responsive to the aims and purposes of the dental hygienist and has provided educational facilities. The hygienist has proved a valuable aid and her work merits commendation. There is an urgent need for complete cooperation between hygienists and dentists. For this reason, a committee from the American Dental Association and from the American Dental Hygienists' Association should be appointed to study interrelated problems. Frances Agnes Stoll, chairman of the Committee on Education of the American Dental Hygienists' Association, on at least two different occasions made the following statement:

> Is there any justification for advocating an increase in the type of services that the dental hygienist may perform, when it is obvious that there are no facilities for teaching these skills? In the future, when the supply comes close to meeting the demand for dental hygienists, then and only then may we consider where her training may be increased to prepare her to render further service.

I think the dental profession is entitled to know now just what this statement means. Now is the time for frank discussion of this subject. Possibly there are some few in the dental profession and in the American Dental Hygienists' Association who have ideas conflicting with the ideas and wishes of the majority of American dentists.

Dental Assistants

The dental assistant is one of the greatest assets to any dental office, and her years of association with dentists give weight to her request for increased scholastic training. There is as much reason for training dental assistants in dental schools as there is for training other associated or affiliated groups. The Board of Trustees has appointed a com-

mittee of five dentists to cooperate with a similar committee from the American Dental Assistants Association, for consideration of many mutual problems. It would be well to extend these committees to state and local levels.

Dental and Medical Cooperation

During the past twenty years especially, an intimate spirit of cooperation has grown between medicine and dentistry in civil practice. In most communities, there is complete understanding of interrelated problems and the true spirit of cooperation.

Because of the lack of vision and understanding, in the Army and Navy especially, of the necessity of autonomy for both professions and of the need of a spirit of cooperation, dentistry has been greatly hampered and prevented from attaining its full efficiency. During World War II, many dentists, having had occasion to run into the unfair bureaucratic authority of some overzealous member of the medical profession and having learned of the attempt of Harvard and more recently, Columbia, to endeavor to relegate dental education to a role subservient to medicine, feel they have some grievance against physicians. This attitude is wrong in that it reflects inaccurately the attitudes and cordial relations of most members of both professions and should not be allowed to develop.

The acceptance of the focal infection theory and knowledge that the mouth is an important factor in the total health picture make it apparent that neither the dental profession nor the medical profession is complete in itself. There is a need for an improved understanding of general health values in dental practice. Dental health is a part of general health; therefore dental health care must complement general health care.

There is need for complete understanding and cooperation between these two professions in matters of organization and types of health care, as well as in matters of education and care of the sick. Many excellent plans of cooperation between medicine and dentistry are in operation in many of the states. A notable example of dental and medical cooperation is shown in the attitude of both professions in the matter of compulsory health insurance plans.

Effective cooperation between the professions can be achieved with each profession retaining its autonomy. Experience has shown that it is neither necessary nor practicable for the physician to be educated as a dentist or the dentist as a physician. The public will continue to benefit from the autonomous nature of of the two professions, provided there is essential coordination of their plans and effective cooperation in their efforts.

As a result of a conference with medical leaders in the District of Columbia, the District of Columbia Medical Society passed a resolution calling for appointment of a committee of five outstanding physicians to cooperate with a similar committee for the District of Columbia Dental Society. The society introduced and passed this resolution at a meeting of the house of delegates of the American Medical Association, and the board of trustees of the American Medical Association, at its February 1947 meeting, named the following five physicians to cooperate on the national level: E. L. Henderson, 606 South Fourth St., Louisville, Ky.; E. E. Irons, 122 South Michigan Blvd., Chicago; W. F. Braasch, 102 Second Ave., S.W., Rochester, Minn.; L. H. Bauer, 131 Fulton Ave., Hempstead, N. Y., and George F. Lull, chairman, 535 North Dearborn St., Chicago.

As president of the American Dental Association, I have named the following dentists to this committee: C. Raymond Wells, chairman, 1 DeKalb Ave., Brooklyn 1; Harold E. Noyes, Dental School, University of Oregon, Portland; Horace L. Cartee, Huntington Bldg., Miami, Fla.; J. Ben Robinson, 42 South Greene

St., Baltimore 1, and L. H. Jacob, Jefferson Bldg., Peoria, Ill.

State Journalism

It is of great importance to the members of the American Dental Association to encourage and stimulate state journalism.

One of the problems is finding material for the journals that is not secondhand or that has not been used in the national journal.

The president of the American Dental Association is chosen as a representative of the House of Delegates to cooperate with the various states and the central office in Chicago and to support the plans of the Association. Through this avenue the president is enabled to gain information from various sources that could be valuable to each state. I prepared a series of articles for release to state editors and state society presidents and secretaries on such subjects as state journalism, public information or public relations, legislation, dentistry for children, prosthetic laboratory problems, the program for extension of dental health and dental research sponsored by the American Dental Association, plans of the Veterans Administration, veterans' problems and cooperation between dentistry and medicine. From the response received from the various states, it is believed that this service has been of enough value that there will be reason for future presidents to follow this procedure.

Public Relations

One of the greatest services that can be rendered in the interest of promotion of dental care is a progressive public relations program. The most effective way of influencing legislation and social changes is by improvement of relations between medicine and dentistry and associated groups and by proper contact with the public.

The dentist himself is the greatest agent for dissemination of information, and his services should be utilized to the fullest extent. In addition to newspaper and other articles, more radio time should be secured and suitable programs should be well arranged and staged. Also, magazine space should be obtained.

The states that have fine departments of public information should be an inspiration and aid to all other states planning similar programs. For this reason it would seem desirable to hold periodic meetings which would be attended by all state organizations and by the Bureau of Public Information of the central office. Such a meeting should be held at least once each year during the annual meeting of the Association.

Economics

It is difficult to understand why any dentist who has been in the armed services should have a problem at this particular time in reestablishing himself in private practice satisfactorily from an economic standpoint. The veteran dentist should receive ample assistance in obtaining patients from the local dentists, many of whom have more patients than they can take care of.

If the veteran needs instruction or advice from an economic standpoint, this should be made available to him. Any successful dentist will tell you that an understanding and appreciation of economics is essential to his ability to exist and render good service to his patients.

Economic studies should lead to detailed instruction of and assistance for private practitioners. It would seem desirable to improve the courses on economics in the dental schools and to initiate the presentation of essays and clinics on practical economics at meetings of the state societies.

General Anesthesia in Dentistry

The role of dentists in the discovery

of and later development in the technic of administration of general anesthetics is well known to every member of the profession. After more than one hundred years of passionate conflict, the controversy for the honor of priority of discovery of general anesthesia has not yet been settled to everyone's satisfaction and although, for the moment, all appears tranquil on that particular front, we may be sure that we have not heard the last of the matter.

The American Dental Association, as well as the American Medical Association, has recognized Horace Wells, a dentist, as the discoverer of anesthesia. William T. G. Morton, a dentist, first demonstrated ether anesthesia and was the first specialist in anesthesia. His claims to the discovery of the anesthetic properties of ether were recognized by the Congress of the United States. Thomas W. Evans, a dentist, introduced the use of nitrous oxide anesthesia into Europe. He was also responsible for the method of liquefying oxygen and confining it to small iron cylinders, making possible its convenient transportation and administration with nitrous oxide. Carlson and Gothenberg, dentists, introduced the use of ethyl chloride into surgical practice. Teter and Heidbrink, dentists, were early manufacturers of apparatus for the administration of nitrous oxide and did much educational and scientific research in promoting nitrous oxide anesthesia.

This short summary does not, by any means, exhaust the list of dentists who made important contributions to what Sir William Osler called "the greatest single gift ever made to suffering humanity."

In the light of this history, how shall we account for the present status of general anesthesia in dentistry? Why have numerous European and South American countries prohibited the administration of general anesthetics by dentists? Why are periodic attempts made in this country to pass legislation for the purpose of prohibiting or "controlling" general anesthesia in dentistry? And why does the infrequent and probably unavoidable death in the dental chair become the subject for sensational newspaper headlines?

Serious students of the subject have reached the inescapable conclusion that, whereas the progress of anesthesiology has been accelerated greatly, particularly in the past ten years, dental anesthesia has not been affected extensively enough by the newly acquired facts, practices and technics.

The dentist in office practice is at a disadvantage with regard to equipment and facilities, and adequate personnel are available only to the general surgeon in the modern hospital or to the oral surgeon with a trained staff. It is further pointed out that the discovery and perfection of the technic of administering local anesthetics has made the dentist less dependent on general anesthesia. Hence his interest has waned.

The successful administration of general anesthetics is most difficult and requires training and broad experience. Good results depend on a qualified anesthetist, proper and well functioning equipment, adequate preoperative examination and preparation of the patient and judgment in the selection of the agents and management of the patient. Proper choice of anesthetic agent is of great importance, as there is no one anesthetic agent best for all patients.

In the light of these concepts, how shall we condone the attitude of the dentist who proceeds to administer a general anesthetic with no more training or preparation than the instruction given him by the representative of a manufacturer of a gas machine? The possession of a machine for the administration of a general anesthetic does not qualify a dentist as an anesthetist. Unless the dental profession is willing to run the risk of inevitable governmental prohibition or control of the administration of general

anesthetics, the individual dentist, the dental schools and, above all, the national, state and local dental societies must take steps to train the dentist in the administration of general anesthetics.

The dental schools must be staffed with men trained not only in the teaching of what may be called the basic sciences of anesthesia (physiology of respiration; chemistry and pharmacologic action of the various anesthetic agents; the stages, signs and symptoms of anesthesia, and resuscitation) but also in the administration of general anesthetics and analgesics for dental and oral surgical operations. Postgraduate courses must also be organized, developed and expanded to their maximum capacity.

Finally, the various dental societies should establish sections and committees on general anesthesia whose duty it will be to promulgate concrete programs for the training of constituent members in the practice of general anesthesia.

Only by full exploitation of its opportunities along the lines barely suggested here will the dental profession succeed in the preservation of its heritage—a gift which it gave to the world—the power to eliminate pain through the medium of general anesthesia.

Program of Veterans Administration

The dental program of the Veterans Administration is something new and vital in the care of veterans. Through the dental residency training program specialized instruction will be provided for professional men. By means of an adequate dental fee schedule, the private practitioner is invited to participate in the outpatient care of veterans.

It is good to note that this particular federal program does not lower the standards of dental care, does not interfere with the private practice of dentistry and does not violate any of the principles enunciated by the dental profession. On the contrary, it insists on a high type of service and fosters those principles which have made dentistry an important health service. As long as these principles are adhered to the plan will be successful.

The Committee on Military Affairs is establishing state and community committees for assistance to the veteran, and the work of these committees should be encouraged.

Legislation for Armed Forces

The following bills in Congress are of special interest to dentistry:

S. 904, introduced by Senator Gurney, and H.R. 2536, introduced by Representative Andrews, are "to provide for the procurement, promotion and elimination of regular Army officers and for other purposes." As usual, there is discrimination against dentistry in favor of medical groups.

S. 902, introduced by Senator Gurney, and H.R. 2537, introduced by Representative Andrews, are "to regulate the distribution, promotion and retirement of officers of the Navy and Marine Corps, to provide for the advancement of enlisted personnel to commissioned grades, and for other purposes." There is again discrimination against dentistry in favor of the medical group.

S. 758, introduced by Senator Gurney, is the so-called reorganization act or "National Security Act of 1947." This bill does not properly take into consideration dental services.

S. 1143, introduced by Senator Gurney, and H.R. 3174, introduced by Representative Andrews, are "to provide for the procurement of physicians and surgeons in the Medical Department of the Army, and for other purposes." These bills make no provision for dentistry.

S. 1197, introduced by Senator Gurney, and H.R. 3254, introduced by Representative Andrews, are "to provide additional inducements to physicians and surgeons to make a career in the United States Naval Service, and for other pur-

poses." Again there is discrimination against dentistry. Dentistry is not even mentioned, although it is just as difficult to secure dentists as it is to secure physicians. About six months ago the Navy held an examination to fill 700 vacancies in the Dental Corps. Although the examination was advertised widely to dentists and dental schools throughout the United States, there was only one applicant. At present there are more than 700 vacancies because many officers have resigned. Notice of another examination has been sent out, but no applications have been received. The same situation prevails in the Army, except that the Army requires more than twice as many dentists as the Navy. The Army, in trying to solve this problem, is giving one year of service to a reserve officer and, if the officer measures up to Army standards, he will be given a regular Army position without examination. The Army is also establishing internships in hospitals for students after graduation and after one year these students will be given regular Army status without examination.

In the armed forces, dentistry has grown up over the years from an infant to an adult. In the beginning it was considered desirable, on account of the small number of officers and lack of service experience, to put the dental services under the Medical Department for practical reasons of administration. The Medical Corps through the years has forgotten and overlooked the relation of medicine and dentistry in private practice and has utilized the dental service for its own private and selfish purposes, claiming that dentistry is a part of medicine so that it may utilize dental personnel to increase its numbers in order to obtain higher rank for medical officers at the expense of dental efficiency.

Dentistry did a magnificent job in World War II, as cited by the Medical Department and others, but it must be remembered that there were in the services 23,000 of the best dentists in the world. With efficiency much more could have been accomplished for the soldier and the sailor. The dissatisfaction is well known. Conditions were so bad that it was possible to prove to Congress during wartime that legislation was needed to increase the efficiency of the dental service in the Navy Dental Corps. This law passed Congress over the protest of naval bureaucracy. Even though this bill has become a law with instructions to bring about the necessary changes within six months thereafter, the Navy Department, and especially the Medical Department, is not carrying out the true intent of Congress and to this date has not promulgated regulations as required by Public Law 284. The law went into effect June 28, 1946. In the Navy, however, there never has been a concentrated attempt to gag the opinions of individuals, and a more democratic spirit has existed. In spite of opposition by the Navy to our legislative efforts, dental officers were allowed to talk and even to testify before Congress.

Contrast this spirit with that of the Army. The Army Medical Corps is the most autocratic of all services. In the Army Dental Corps there is no one who can express his opinion aloud. Morale in the Army Dental Corps is low, and there is great necessity for changes in the law governing the Dental Corps of the Army.

The Medical Corps of the Army has not given the Dental Corps the opportunity for increased efficiency that is warranted. It purposely has given the impression that the reason for opposing legislation was that improvement could be made by regulation. A report by Carl O. Flagstad,[1] chairman of the Committee on Legislation of the American Dental Association, contains copies of all the correspondence and definitely places the Medical Department on record in a bad light.

Immediately after the war, in order to

1. Report of Activities to Change Status of Army Dental Corps. *J.A.D.A.* 33:1030 (August 1) 1946.

forestall legislation, a bone was thrown to dentistry in the form of a halfway regulation, which was heralded by the Army Medical Corps as a great progressive step. The issue of A.R. 40-15, dated August 8, 1945, was rescinded without notice under date of August 23, 1946.

In an editorial in THE JOURNAL OF THE AMERICAN DENTAL ASSOCIATION[2] the following damaging comparisons are made:

Regulations of August 8, 1945

Administration.—a. Matters relating to the dental service as a whole are administered by the Director, Dental Division, as assistant to the Surgeon General, through The Surgeon General.

b. In a theater, service command, or any other headquarters, matters relating to the dental service are administered by the dental surgeon, through the surgeon.

Regulations of August 23, 1946

Administration.—a. Matters relating to the dental service as a whole are administered under the direction of The Surgeon General by the Chief, Dental Consultants Division, as assistant to the Surgeon General.

b. In a theater, army or any other headquarters, matters relating to the dental service are administered by the dental surgeon, under the direction of the surgeon.

Regulations of August 8, 1945

Duties of Dental Officers . . . To route all recommendations or communications originated by him through the surgeon who will forward them with appropriate recommendations or remarks.

Regulations of August 23, 1946

Duties of Dental Officers . . . To route all recommendations or communications originated by him to the surgeon who will take appropriate action.

By the law of 1917, Congress provided for the Dental Corps as follows:

Hereafter the Dental Corps of the Army shall consist of commissioned officers of the same grade and proportionally distributed among such grades as are now or may be hereafter provided by law for the Medical Corps, who shall have the rank, pay, promotion and allowances of officers of corresponding grades in the Medical Corps, including the right to retirement as in the case of other officers, and there shall be one dental officer for every thousand of the total strength of the Regular Army authorized from time to time by law.

The Medical Corps succeeded in abolishing this provision.

The American Dental Association is interested in all bills relating to the Medical or Dental Corps of the Army and Navy, and the Association shall fight for equal rights with the Medical Corps in proportion to its numerical strength, with partial autonomy under the direction of one commanding Surgeon General.

Complete unification of the medical services, should it occur, would only aggravate the inefficiency and place the Dental Corps under one autocratic and uncooperative power. The Association should then fight for complete separation of dentistry from the Medical Department, with a Dental Surgeon General.

The Association has repeatedly called attention to the inefficiency in the Dental Corps, owing to lack of control by dentists of dental activities and to lack of the right of direct approach to the commander of any installation.

Health Service Legislation

American dentistry has long been interested in the problem of the extension of dental service. During the past few years there has been created a demand for dental service far above the dental man power available today.

Although the dental profession has worked a number of years for the adoption of the principles of its present program, the public does not fully realize the necessity for this program. The concentration of effort now, therefore, should be on a program of advising the public how

2. The Army Retrieves Its Bone: Changes in Army Regulations. *J.A.D.A.* 34:488 (April 1) 1947.

it can receive the best dental care.

The dental profession has shown that research into the causes of dental disease, rather than the expensive method of repair of damaged tissues, is the reasonable approach to the problem. Public funds are still too meager and Congressional action still lags after years of educational work.

American dentistry has long endeavored to promote plans for examination of all school children and plans for grants-in-aid so that all may be given dental service, even though they have no funds. A number of localities have had successful programs working for a number of years.

It must be clearly understod that the Committee on Legislation is responsible to the House of Delegates for its actions, but it is greatly influenced in its activities by the opinions of other committees and persons. There should be frequent conferences of all concerned in order to maintain a united front for accomplishing the aims of the Association.

Congress has never been friendly to pressure groups or lobbies, and most members resent any lobbying influence. The aims of the dental profession can be accomplished to better advantage by public information work.

There has been considerable misunderstanding in the House of Delegates with regard to giving free dental service to those who can afford to pay. Senator Taft, in answer to this question, wrote the following letter:

November 19, 1946

Sterling V. Mead, D.D.S.
1149 Sixteenth St., N.W.
Washington, D. C.
Dear Dr. Mead:

You have asked my views about the possibility of federal legislation authorizing grants-in-aid to the states for dental service. I believe that such legislation should be adopted, but I also believe that the justification for calling on the federal government to supplement state and local funds depends on certain basic principles which must be followed. In the field of public health, I think some assistance may be justified and this would cover inspection services for the children in the schools.

When it comes to free medical care for children and adults, however, I can see no basis for federal action except to take care of those who are unable to pay for such care themselves. We have not reached a point in America where the government is going to support men and women able to support themselves. Therefore, in any legislation to aid the states to provide free medical or dental care, I believe that federal money should only be used to give such care to those who are unable to pay for the care themselves. I do not think that any bill that goes beyond that or attempts to provide free medical care for all persons at public expense will have much chance of passage at the present session.

Sincerely yours,
(Signed) Robert A. Taft.

A difference of opinion existed regarding the interpretation of the Miami resolution on a means test in relation to federal dental health legislation. The Council on Dental Health reached a decision and passed the following resolution leaving responsibility entirely in the hands of the Committee on Legislation:

In recognition of the differences of opinion between the Committee on Legislation and the Council on Dental Health regarding health legislation in the Federal Congress to provide funds for dental care for the public, the Council on Dental Health recommends that the Committee on Legislation support such federal legislation which the Committee on Legislation interprets to be in accord with the principles and policies adopted by the House of Delegates of the American Dental Association.

The Committee on Legislation was, therefore, obliged to take full responsibility for correct interpretation of the wishes of the House of Delegates in regard to the so-called means test.

The following motion was adopted by the Committee on Legislation in Chicago and will be the policy of the Committee in its actions:

Motion by Dr. Griffin and seconded by Dr. Kurtz: The Committee on Legislation are in

accord with the principle that dental care services to be paid out of federal grants-in-aid funds shall be furnished only to those unable to pay in whole or in part for these services, and that each state or community shall determine which individuals are eligible for such dental care services. The committee is of the opinion that this principle is in conformity with the policies approved by the House of Delegates of the American Dental Association. The Committee has full confidence that the chairman and secretary of the committee will protect the best interests of the public and of the dental profession in dental health legislation.

There has been a contention by some groups that states should be given federal money to use for free medical and dental service to all, regardless of ability to pay, if they so choose. The House of Delegates should state clearly its position in this matter.

The research bill should receive favorable consideration as there is no conflict in philosophy between the majority and minority parties in Congress regarding it. To secure favorable action, however, will require constant and tireless effort on the part of all.

There are many health bills in Congress. It will be necessary to oppose compulsion and modify other bills to conform to the philosophy of the American Dental Association as interpreted by t Committee on Legislation.

International Dentistry

Most of the countries of the world have fallen victims of the totalitarian social plans of compulsory health service and have seen their liberties taken from them, with degeneration of dental service and a complete loss of personal control of their own dental activities. They are looking to this country for leadership and help. The dental profession should recognize clearly its duty in international relations and should encourage free interchange of ideas and facilities.

The medical, dental and legal professions of any country are only a small segment of its population, but because of their daily contacts they can exercise a tremendous force in developing international understanding and contributing toward world peace. Dentists in all countries must become better acquainted with one another, must exchange ideas and technics and must have sympathy and appreciation for each other's work and problems. Toward this end, international conferences and meetings should be encouraged and arranged.

Fédération Dentaire Internationale

The *Fédération Dentaire Internationale* was founded in Paris in 1900 and has representative sections in fifty-two nations of the world. The *Fédération* meets annually in a different country of the world and once every five years it holds an international dental congress. To date, there have been nine international dental congresses, three of which have been held in the United States. The last congress was held in Vienna in 1936. The Tenth International Dental Congress was scheduled for London, England, in 1941. Because of the war, it was impossible to hold the dental congress in London, and because conditions in Europe are so chaotic, the officials of the *Fédération* last year asked the American Dental Association to agree to hold and sponsor the Tenth International Dental Congress at Boston in August 1947. Although this meeting will not be as large as the other international dental congresses from the standpoint of international attendance, it will afford the leaders of the *Fédération* an opportunity to elect officers and continue to function properly. The officials of the *Fédération* are very eager to have the American Dental Association take an active part in international dental affairs.

Pan American Odontological Association

At the meeting of the American Dental Association in Atlantic City, N. J., a

group of American dentists interested in Pan American affairs organized the Pan American Odontological Association. This organization is made up of representative American dentists, and its headquarters is located in New York. It has confined its efforts mainly to furnishing scholarships in dental schools in the United States to Latin American dentists. Once a year a banquet is held in conjunction with the Greater New York meeting.

Federation Odontologica Latino America

It is regrettable that most North Americans are unfamiliar with the splendid achievements of the *Federation Odontologica Latino America* (FOLA) in South and Central America. This organization has been in existence since 1917. It is composed of representatives of all of the Spanish speaking countries in the new world. To date four large Spanish dental congresses have been held. The fifth congress will be held October 3-15 at Buenos Aires. The officials of the organization have invited the Canadian Dental Association and the American Dental Association to send official delegates to their conferences and have invited more than 3,000 North American dentists to attend and give clinics. If a sizable delegation from North America is in attendance, this fifth congress will become the first Inter-American Dental Congress.

I have already named official delegates to attend the conference. Because I believe that the future will see many more Inter-American Dental Congresses and that their work will contribute to hemispheric solidarity and understanding, I urge members of the American Dental Association to attend this congress.

Dental Societies

Besides the international organizations that I have mentioned, most national dental societies have committees on international relations. The American Dental Association has such a committee whose purpose is to maintain contact with all of the foreign dental associations and to facilitate the exchange of dental knowledge and information. The committee also keeps an accurate file of the foreign dental schools, foreign dental societies and foreign dental journals and literature.

Information concerning the laws of the various countries is now being collected. The library of the American Dental Association has an extensive collection of foreign dental journals and books, and it is desired to maintain an active exchange with all foreign dental publications.

International Health Organizations

The constitution of the World Health Organization will come into force when twenty-six members of the United Nations agree to become parties to it. Meanwhile there has been established an Interim Commission of the World Health Organization consisting of representatives from eighteen nations, one of whom will be from the United States. Each representative will be accompanied by an alternate and by advisers.

The Interim Commission has been assigned the responsibility of completing organizational details, of studying the question of relations with nongovernmental international and national organizations and of considering any urgent health problem which may be brought to its notice.

In view of the fact that dentistry is an integral part of any general health service, it is logical to assume that many of the health problems with which the World Health Organization will be concerned will also encompass certain dental implications. This assumption can be applied specifically to the stated functions of the organization dealing with the promotion of cooperation among scientific and professional groups which con-

tribute to the advancement of health; the promotion of maternal and child health and welfare; the promotion of research in the field of health; the promotion of improved standards of teaching and training in health, medical and related professions; the study and report on, in cooperation with other specialized agencies, administrative and social technics affecting public health and medical care from preventive and curative points of view, and the creation of an informed public opinion among all peoples on matters of health.

It is significant that last June, when the World Health Organization held its organizational meeting in New York, the representatives of dentistry were not invited until after they had asked for an invitation. Even then the agenda did not include any topic concerning dentistry. As a result of this neglect, the House of Delegates of the American Dental Association at the Miami meeting passed a resolution calling attention to the neglect of dentistry in the World Health Organization and requested that dentistry be given consideration.

Although an Interim Commission of the World Health Organization was formed at New York and has established permanent headquarters at Geneva, Switzerland, the dental profession of the world is still waiting to be recognized and invited to participate in their work. It is hoped that this situation will be corrected in the near future.

United Nations Organization

It is a well known fact in the Department of State that the American Dental Association's program in international relations has been a great help to the Department's program of cultural relations. Because of this record, it was natural that the Association should expect to be recognized and placed on the national committee of the United Nations Educational, Scientific and Cultural Organization (UNESCO). Although the American Dental Association urged the appointment of a committee of dentists on the national committee, to date the Department of State has not seen fit to recommend this action. However, the Association has been invited to send representatives to two of the national conferences of the organization. I appointed LeRoy M. Ennis and Daniel F. Lynch to represent the Association at the UNESCO conference held in Philadelphia in February. Victor H. Sears and Ira C. Brownlie were invited to attend the conference at Denver in July.

I am informed that the dental programs of the UNRRA and the Unitarian Service Committee in foreign countries were the most successful projects of their entire endeavor. The demand for and appreciation of dental service was expressed best in the wholehearted cooperation of the people and the officials in the foreign countries.

World Medical Association

Thirty-three medical associations in thirty-one countries were represented at a three-day conference held at the British Medical Association House in London, opening on September 25, 1946. The conference was under the joint auspices of the *Association Professionnelle Internationale des Médecins* and the British Medical Association, and its general agenda were to discuss the objects of international liaison, the setting up of an international body for the achievement of such objects and the constitution and immediate program of such an organization. It was agreed unanimously that such an association be constituted with the objectives of promoting closer ties between the various national medical organizations, of studying the problems which engage the profession in different countries, of organizing exchanges of information and of establishing relations with, and presenting the views of the

profession to, the new World Health Organization and UNESCO. The conference was attended by forty-three delegates and thirty-two observers.

It was agreed that the title of the new body should be the "World Medical Association," and an acting committee was set up comprising representatives from Great Britain, Canada, Switzerland, France, Belgium, Sweden, Spain, Czechoslovakia and Egypt. It was agreed unanimously that this conference express the view that there should be an international organization of medical associations. One function of the organization would be to act as a safeguard against the violation of professional ethics by political doctrinaires and to resist political pressure of every description.

There was more need for an international organization to study the professional problem of the private practitioner, especially in view of the social security legislation which had been passed or was pending in many states. The aim of an international organization should be to defend the rights of the ordinary practitioner and also of his patients. Eventually the phrase "to establish relations with, and to present the views of the medical profession to, the World Health Organization and UNESCO" was agreed upon.

Every effort should be made by the dental profession to cooperate with the medical profession in world health care. However, when the dental profession is not recognized in the organizations being formed, then it is time for international dental organizations to set up a world-wide plan for dental health care.

It is, therefore, recommended that the American Dental Association now take leadership in the coordination of the international dental organizations that already exist.

Recommendations

1. It is recommended that each state and local dental society be urged to appoint a committee on dentistry for children so that an active campaign, embracing all phases of the problem, can be conducted in support of the Council on Dental Health of the American Dental Association.

2. It is recommended that active measures be taken for the training of dental technicians in the dental schools and for the discouraging of such training in proprietary schools.

3. It is recommended that committees on relations with dental laboratories and dental technicians be established as soon as possible.

4. It is recommended that the American Dental Association name a committee to cooperate with a similar committee from the American Dental Hygienists' Association.

5. It is recommended that the House of Delegates give consideration to the following statement made by Frances A. Stoll, chairman of the Committee on Education of the American Dental Hygienists' Association:

> Is there any justification for advocating an increase in the type of services that the dental hygienist may perform, when it is obvious that there are no facilities for teaching these skills? In the future, when the supply comes close to meeting the demand for dental hygienists, then and only then may we consider where her training may be increased to prepare her to render further service.

6. It is recommended that state dental societies follow the national pattern in establishing liaison committees with dental assistants' organizations and that these committees be established at state and local levels as soon as possible.

7. It is recommended that state dental societies support the action of the American Dental Association and of the American Medical Association by establishing committees at the state level for greater cooperation between the two professions.

8. It is recommended that state dental

societies be encouraged to create public information or public relations programs and committees.

9. It is recommended that such public relations committees meet at least annually with the Bureau of Public Information of the central office, and that the Board of Trustees be instructed to provide funds necessary for such a meeting.

10. It is recommended that the Council on Dental Education determine whether or not there can be an improvement in the teaching of dental economics in dental schools.

11. It is recommended that the Council on Dental Education take steps to ensure more adequate training in the administration of various forms of general anesthetics in the dental schools.

12. It is recommended that state dental societies be urged to appoint committees on anesthesia for the purpose of establishing more adequate facilities for the training of dentists in the administration of all forms of anesthetics. Particular emphasis should be placed on general anesthesia and on the basic sciences essential to a sound knowledge of general anesthesia.

13. It is recommended that the House of Delegates state in unmistakable language its position with regard to free dental care for those who can afford to pay.

14. It is recommended that state dental societies be urged to appoint committees for assistance to veterans at the state and local levels. These committees should be developed on the pattern suggested by the Committee on Military Affairs and should encourage the veteran to participate actively in the affairs of his state and local dental societies and of the American Dental Association.

15. It is recommended that the American Dental Association take leadership in coordinating the various international dental groups devoted to international dental relations for the purpose of developing universal plans for better dental health of the world.—*1149 Sixteenth Street, N.W.*

DENTAL CARIES IN ABUTTING OR BILATERALLY CORRESPONDING TOOTH SURFACES

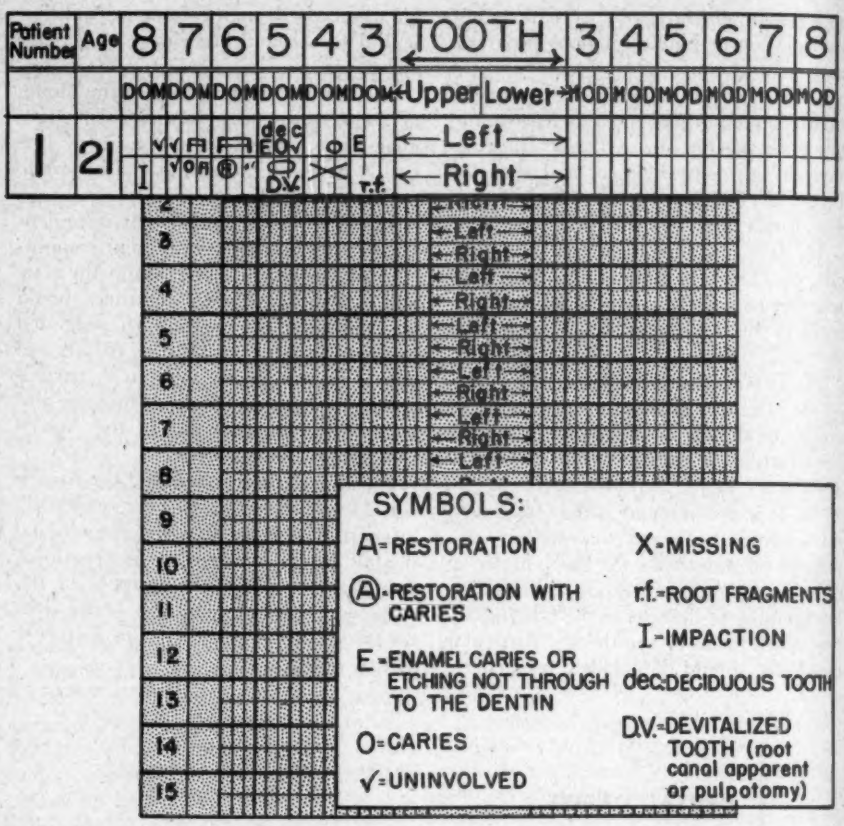
Fred L. Losee, D.D.S., Bethesda, Md.

A STUDY was made as to the incidence of caries, etching and restoration in tooth surfaces, either abutting or bilaterally corresponding. The purpose was to confirm or disprove the assumption that if one surface of a tooth is involved, the abutting surface of the adjacent tooth or the corresponding tooth surface on the opposite side of the mouth usually is involved also.

Data were obtained from roentgenographic and clinical examinations of Marine Corps recruits entering the Corps between January 5 and June 15, 1946, at

The opinions and views contained in this article are those of the writer and are not to be considered as reflecting the policies of the Navy Department.

Lieutenant Commander (DC) USN, U.S. Naval Dental School, Bethesda, Md.



Condition of Tooth Surfaces With Interpretation of Coded Entries. Upper left.—Third molar: D, O, surfaces unreadable; M, uninvolved. Second molar: D, uninvolved; MO, restoration. First molar: MOD, restoration. Second bicuspid: Deciduous tooth; D, enamel etching; O, caries; M, uninvolved. First bicuspid: D, unreadable; MO, caries. Cuspid: D, enamel etching. Upper right.—Third molar: Impaction. Second molar: D, uninvolved; O, caries; M, restoration. First molar: DO, restoration with caries; M, uninvolved. Second bicuspid: Entire crown carious; tooth devitalized. First bicuspid: Missing. Cuspid: Root fragment

the U. S. Marine Base, San Diego, Calif. The median age of recruits was 21.23 years. They were volunteers from all states west of the Mississippi, with no one state or region predominating.

Roentgenograms and clinical examinations have been employed by other investigators to determine the dental status of various groups of persons. The surveyed groups most nearly comparable to the Marine Corps recruits are the Aviation cadets,[1] air crews,[2] naval recruits,[3] college students,[4] a cross section of city people[5]

1. Senn, W. W., Incidence of Dental Caries Among Aviation Cadets. *Mil. Surgeon* 93:461 (December) 1943.
2. Harvey, W., *Scheme for Mass Dental Radiography of R.A.F. Air Crew on Entry by "Bite-Wing" X-rays.* Military Attaché Report, September 10, 1945.
3. Rehrauer, W., and Berglund, K.V.L., Dental Abnormalities in Recruits. *U. S. Nav. Med. Bull.* 38:242 (April) 1940.
4. Arnett, J. H., and Ennis, L. M., Dental Infection and Systemic Disease; A Review of the Literature and a Study of 883 College Students, Including Complete Dental Roentgen-Ray Examination. *Am. J. Med. Sc.* 185:777 (June) 1933.
5. Hollander, Franklin, and Dunning, J. M., A Study by Age and Sex of the Incidence of Dental Caries in Over 12,000 Persons. *J. D. Res.* 18:43 (February) 1939.

Readings on 580 sets of bitewing roentgenograms

Readable abutting surfaces (for example, distal aspect of cuspid and mesial aspect of adjacent bicuspid)

Neither surface	3,666 pairs	(49.9 per cent)
One or both surfaces	3,688 pairs	(50.1 per cent)
Total	7,354 pairs	(100 per cent)

Of the 3,688 pairs with one or both surfaces involved:

Both surfaces	2,782 pairs	(75.4 per cent)
One surface	906 pairs	(24.6 per cent)
Total	3,688 pairs	(100 per cent)

Readable bilaterally corresponding surfaces (for example, occlusal surfaces of upper left and right first molars):

Neither surface	5,102 pairs	(44.3 per cent)
One or both surfaces	6,411 pairs	(55.7 per cent)
Total	11,513 pairs	(100 per cent)

Of the 6,411 pairs with one or both surfaces involved:

Both surfaces	3,974 pairs	(61.9 per cent)
One surface	2,437 pairs	(38.1 per cent)
Total	6,411 pairs	(100 per cent)

and naval personnel on first examination in 1942.[6] However, these reports varied in coverage, and the ages were not consonant to the group of Marines then being recruited. Since none of the findings included the specific information on paired tooth surfaces in which I was interested, the present study was undertaken.

Procedure

Bitewing roentgenograms were made of the mouths of 580 Marine recruits taken at random. These roentgenograms were read with the aid of a dental x-ray illuminator.

The findings were recorded in code on a chart in such a manner that immediate comparison could be made with either abutting or bilaterally corresponding (symmetrical) tooth surfaces (illustration). Coded entries were made only for surfaces which could be read easily or, in cases of doubt, could be checked by clinical examination with mirror, explorer and air. For purposes of this study, involvements on only the buccal, labial and lingual surfaces were not recorded. Readings were taken only of the distal surface of the cuspid and the mesial, occlusal and distal surfaces of teeth lying posterior to the cuspid. Four teeth, the first and second bicuspids and the first and second molars, provided most of the readings. The third molar often was found to be unerupted, or its surfaces were not readable in the roentgenograms.

The coded data were tabulated and analyzed to determine incidence of caries or other involvement in paired (abutting and symmetrical) tooth surfaces.

Tabulation

The readings on 580 sets of bitewing roentgenograms are shown in the table.

6. Schlack, C. A.; Restarski, J. S., and Dochterman, E. F., Dental Status of 71,015 Naval Personnel at First Examination in 1942. *J.A.D.A.* 33:1141 (September) 1946.

Analysis

Abutting pairs.—The median number per mouth of paired abutting tooth surfaces (readable) is 12.7 pairs (25.4 surfaces); involved pairs (one or both surfaces), 6.3; involved individual surfaces, 11.1.

After one of the 11.1 involved abutting surfaces is located in the average (median) mouth, in the absence of predisposing factors the probability that one of the remaining 10.1 involved surfaces will be an abutting surface is 10.1 in 24.4 (45.1 per cent). Actually, however, this study showed the probability of the second tooth being involved to be 75.4 per cent, which is 81.7 per cent more frequently than if distribution of involved surfaces were by chance alone.

Symmetrical pairs.—The median number per mouth of symmetrically paired tooth surfaces (readable) is 19.85 pairs (39.7 surfaces); involved pairs (one or both surfaces involved), 11.1; involved individual surfaces, 17.9.

After one of the 17.9 involved symmetrically paired surfaces is located in the average (median) mouth, in the absence of predisposing factors the probability that one of the remaining 16.9 surfaces will be the bilaterally corresponding surface is 16.9 in 38.7 (43.6 per cent). Actually, however, the probability was found to be 62.0 per cent, which is 42.1 per cent more frequently than if distribution were by chance alone.

Summary

A statistical analysis was made of readings of 580 sets of bitewing roentgenograms of the mouths of Marine recruits which had received no previous Naval dental treatment. Involved tooth surfaces were found to occur in pairs with greater frequency (81.7 per cent greater for abutting and 42.1 per cent greater for bilaterally corresponding surfaces) than if distribution were determined solely by chance.

Industrial Dentistry.—An outstanding example of what can be done in a comparatively small unit of a large industry is shown in the excellent program now in operation in the Verney Mills in Manchester, N. H. Due to the farsightedness of their president, Gilbert Verney, the mills instituted an educational diagnostic service two years ago.

The Verney Mills has approximately 500 employees. They receive a dental cleansing twice a year. Once a year they have a full mouth x-ray. Along with this service is carried an intensive educational program. Within a year, the program was expanded to include a similar service for the children of plant employees. About forty-four children and their mothers have received an educational exposure to dental health. While only the children were treated, their mothers were given advice on proper dental and nutritional care for the children.

In the case of the Verney Mills, the cost per patient per year is $1.14. According to the figures available for 1946, the following items are included: supplies, $117.01; salary for dental hygienists, $1,820. Over the period of operation, it was estimated to cost $1,990.45 per year. Dr. John F. County, the plant dental director, estimated that the same dental plant could handle enough additional patients to cut the annual cost considerably.

Over 50 per cent of the employees in the Verney Mills went to private dentists for dental corrections. More than 75 per cent of the employees went to their dentists and had infected teeth removed.

Industrial dental programs are comparatively new, but the results in plants that have initiated dental programs have been so favorable that many more industries are expected to add them. —*Frederick J. Vittinner and H. Shirley Dwyer, "What Price Industrial Dentistry?" Indust. Hyg. Newsletter 7:14, May 1947.*

HIGHER EDUCATION RECOMMENDED TO INCREASE INTEREST IN DENTISTRY

A. G. Lyle, D.D.S., Washington, D. C.

THE many articles written and the many discussions on the subjects of dental education, medico-dental relations, prevalence of dental diseases, lack of adequate dental attention for the masses and the lack of dental practitioners have led me to believe that a clear and concise knowledge of the accomplishments of the past and the problems of the present and future would be welcomed by all who are interested in the progressive advancement of dentistry.

Excellent articles such as that of Bunting[1] should be read thoroughly in order that a clear understanding of some of the present problems confronting the dental profession, particularly the dental educators, be understood; also that their endeavors to maintain and to promote standards receive the full support of the dental profession. The following facts are given in the hope that they will aid in producing a clear concept of present and future problems and to show the need for encouragement and constructive advice.

Dental Education

Much has been done to improve dental education over a period of many years and more is being done today. The simple fact is that there has been a shortage of dental practitioners for the actual work while every year the public has been made more conscious of its individual dental needs. In other words the public has been educated consistently and made cognizant of the importance of dental health on the one hand, while on the other hand a consistent shortage of dental practitioners has existed. Before the war the shortage was steadily increasing because of the small number of students making the practice of dental science their profession and not because of an insufficient number of dental colleges. During the war the shortage was appalling owing to the demands of the armed services on the civilian dental world from the already existing shortage of dental practitioners. Now, it might be said that the situation is returning to the previous status, but the profession will suffer temporarily from the forced draft type of dental education made mandatory by the dental requirements of the armed services and the civilian world.

Increasing Demand

We must consider the fact that all types of advanced education at present are going through an extremely critical era which will probably extend for a period of approximately four years. All the institutions of higher education must be feeling the stress placed on them by the universal demands for higher educational opportunities. These demands are not only from the servicemen as many would think, but come from both servicemen and civilian sources.

With all the educational institutions presumably striving for a unified progressive educational program by building their individual curriculums up to the

Rear admiral, Dental Corps, Bureau of Medicine and Surgery, Navy Department.

1. Bunting, R. W., Dental Education and the Future of Dentistry. *J.A.D.A.* 34:581 (May 1) 1947.

highest degree possible and considering both the lack of classroom space and professors to meet the educational demand, one might say that the demand is far greater than the supply. In other words, the demand for the present higher education is at the top of the buyer's market.

Taking into consideration the past and the present existing shortage of dental practitioners and the probable future shortage, the fact that (1) two years of pre-dental or liberal arts education are now mandatory before a student can engage in dental study and that (2) half of the students now regularly enrolled in dental schools have three or more years of pre-dental college education with approximately one-fourth of this group entering dental college with a bachelor's degree shows that dental education has improved consistently even though there has been a consistent shortage of dental practitioners to supply the public demand.

A simple answer to all criticisms of dental education is apparent: Increase the supply of needed dental practitioners as fast as possible and maintain present standards of education with an increasing stress, if possible, on the pre-dental or liberal arts education to the extent that finally a Bachelor of Arts degree will be required of all students before entering dental college.

After graduation the student may, if he desires, strive for a master's degree or a Doctor of Philosophy degree in any one of the basic sciences. Instead of burdening him, his education should help him to achieve his desire, whichever it might be. But I emphasize the point that he must graduate with his dental degree first before seeking to obtain further degrees that may advance him in the fields of science and research. This simple answer is thought to be the conception of the dental educators in this country and is being put in effect as fast as possible.

Medico-Dental Relations

The question of medico-dental relations does not strike me as a significant one. Medical practitioners are educated and legally authorized to practice medicine, subject to the laws of the state in which they are located. The education received and the laws of the different states permit all professional men with a Doctor of Medicine degree the legal right to pronounce an individual alive or dead and to administer to all the ailments and diseases and injuries that may occur to a human being, regardless of whether they specialize in roentgenography, dermatology, eye, ear, nose and throat, psychiatry or general medicine or teach in any of the basic sciences.

Dental practitioners are educated and legally authorized to practice dentistry, subject to the laws of the state in which they are located. The education received and the laws of the different states permit professional men with the degrees of Doctor of Dental Medicine or Doctor of Dental Surgery the legal right to practice dentistry but not to interfere with or prescribe for any condition, disease or injury that is associated with any part of the body except the oral cavity, particularly the teeth, regardless of whether they specialize in roentgenography, dental surgery, orthodontia, periodontia, prosthesis or general practice.

In other words dental practitioners are not physicians by the educational standards and are not recognized as such by law. Neither can dentistry be considered a branch of conventional medical practice. By law its field of practice is limited and legally no dental practitioner holding only a dental degree can pronounce an individual alive or dead.

For a clear and true picture of the past and the present achievements of dentistry it is essential that the dental world be cognizant of the following: (1) the recognition by foreign countries of the United States of America as the seat of

dental education; (2) the recognition by the world as to the supremacy of American dentistry, and (3) the recognition by the nation of the dental practitioner's value in the general health program.

The preceding facts are given to set forth clearly the present status of the practice of dental science in this country and to justify not only its existence but also its future endeavors. It is hoped by continued endeavor, both educationally and legally, the future status of dental sciences may be so assured to the end that both medicine and dentistry be considered on an equal basis.

Summary

Today, those who have dental degrees consider themselves part of the medical science group and a recognized factor in the general health of the nation but in the light of existing restrictions cannot be considered as a branch of conventional medical practice.

In regard to medico-dental relations, dental practitioners are willing and desirous to cooperate with the medical practitioners for the good of the people and the general health of the nation, but they feel that full cooperation is necessary. The surgeons originated as barbers; the dentists originated in practically the same category. Medical men and dental men both hope to progress more and more in the advancement of their respective professions for the benefit of mankind and will if each profession cooperates fully. After all, it is the patient that really counts in the final summing up of any question dealing with or pertaining to medico-dental relations.—*Bureau of Medicine and Surgery, Navy Department.*

STUDIES ON THE DENSITY OF CASTINGS AS RELATED TO THEIR POSITION IN THE RING

Ralph W. Phillips, B.S., Indianapolis

THE technic for making cast restorations has been so perfected that casting failures are now the exception rather than the rule. One of the many achievements in the development of this casting efficiency has been the elimination of both surface and internal porosity. In order to assure maximum physical properties and adequate resistance to corrosion, the finished restoration must be free from any type of porosity. The fact that shrinkage of metal and occluded gases are causes of porosity has been well established.[1-4] By the selection of proper sprue gage and length in order to avert porosity resulting from shrinkage and by the correct handling of both gold and blowpipe to prevent porosity resulting from occluded gas, these known hazards to a strong, solid casting have been eliminated.

Assistant professor of dental materials, Indiana University, School of Dentistry.

1. Crawford, W. H., Selection and Use of Investments, Sprues, Casting Equipment and Gold Alloys in Making Small Castings. *J.A.D.A.* 27:1459 (September) 1940.
2. Coleman, R. L., *Physical Properties of Dental Materials*, Research Paper No. 32, National Bureau of Standards, December 1928.
3. Taylor, P. B., Inlay Casting Procedure—Its Evolution and the Effect of Manipulatory Variables. *Proc. D. Centenary*, 1940, pp. 214-223.
4. Thompson, E. C., A Waxing, Investing and Casting Technic. *J.A.D.A.* 26:771 (May) 1939.

Recently the suggestion has been presented that there is a factor influencing casting porosity other than the two previously mentioned. It has been proposed that porosity in some cases might possibly be caused by so-called back pressure exerted by the gas in the pattern chamber against the gold as it is forced into the mold. This can be explained in the following way: It is necessary to provide some means of escape for this gas in the mold so that the space may be filled completely by the entering alloy. Although on certain occasions this may be accomplished satisfactorily by venting the mold, in general the porosity of the investing material must be relied on either wholly or in part. If the investment is too dense or if its bulk is too great, then the escape of gas from the mold might be so slow that a definite back pressure from the gas which remains would result. This pressure could prevent the gold from completely filling the mold and therefore the casting would not be whole and sound.

In order to eliminate this hazard, it has been advocated that the pattern be mounted so that not more than a fourth inch separates the nearest part of the wax pattern from the bottom of the ring, thus leaving a minimum amount of investment to be penetrated by the gas in the mold. Of course, this would necessitate the use of a long sprue in order to place the pattern near the end of the ring. Those few persons who have suggested the possible influence of back pressure consider it as one of the principal causes for rounded margins as well as for incomplete and porous castings. Unfortunately, no research on this particular problem has been published, although Myers[5] touched on it in his studies on the "rebound" of gold.

Back Pressure

The fact that back pressure is a definite phenomenon can easily be demonstrated. Figure 1 shows castings which were made in an inlay ring that was sealed tightly with metal at one end, thus preventing any escape of gas in the mold out through the bottom of the ring. Castings *a* and *b* had sprues 0.20 inch (5 mm.) in length, and castings *c* and *d* had sprues 0.40 inch (10 mm.) in length. Castings *a* and *c* were cast with 15 pounds of air pressure, and 20 pounds of pressure was used for castings *b* and *d*. Figure 2 shows a casting made in exactly

5. Myers, R. E., Variable Pressure Regulated to Prevent Rebound of Molten Metal During Casting. *J. D. Res.* 12:327 (April) 1932.

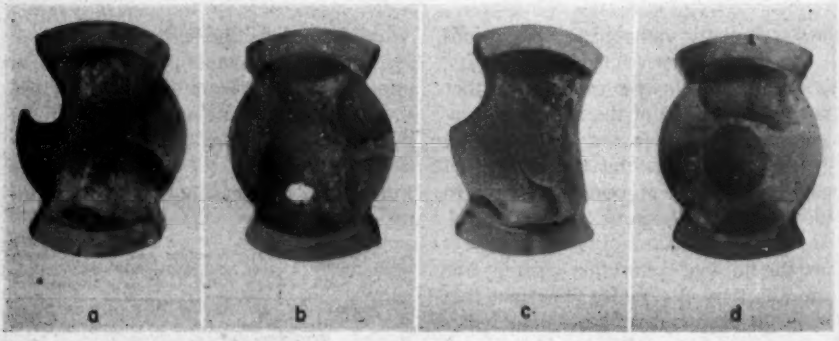


Fig. 1.—Castings made in sealed ring. Back pressure produced incomplete regions when both a short sprue (a and b) and a long sprue (c and d) were used. Casting pressure was 15 pounds with a and c and 20 pounds with b and d

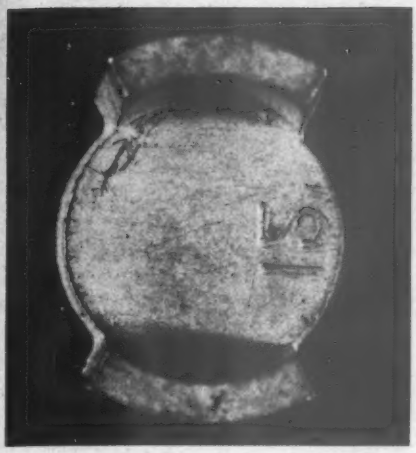


Fig. 2.—Control casting made of a in Figure 1, except that the ring was not sealed

the same manner as casting *a* in Figure 1, except that the end of the ring was not sealed. This control casting shows no incomplete or porous areas. However, the effect of the back pressure when the end of the ring is sealed is evident in *a* and in the other castings shown in Figure 1. In each the force of the entering gold was not sufficient to overcome the back pressure being exerted from the gas which remained in the investment and mold. Of course, the castings made with 20 pounds of pressure are somewhat better than those cast at 15 pounds, since this increase in casting pressure aids in overcoming the back pressure. There is no apparent difference between castings made with a short sprue and those made with a long sprue. Naturally, this is an exaggerated case since in normal practice a sealed ring is not used; however, it does demonstrate that back pressure can exist, dependent in its magnitude on the ease with which the gas can escape from the mold. It seems logical to assume then that the rate of escape in turn would be governed by the thickness of investment which separated the pattern from the end of the ring.

Purpose of Study

Assuming, therefore, that back pressure in the mold can be a definite phenomenon, the purpose of this investigation was to determine whether the position of the pattern in the ring (the distance from the bottom of the pattern to the end of the ring) is an important factor to be considered in obtaining complete and dense castings. The casting procedure is not a haphazard affair. Everything that is done during the entire process has a definite effect on the resulting casting, and each variable that can be controlled means increased assurance of a successful restoration. Since the position of the casting in the ring is one of these variables, it is extremely important to determine the practical significance of this factor.

Over 700 experimental castings were made in which two different positions of the pattern in the ring were studied. The steel M.O.D. die, with a mounted wax pattern, which was used throughout this investigation is shown in Figure 3.

Length of Sprues

The two positions of the wax patterns are shown by Figure 4. At the left, the sprue is 0.20 inch in length, and the distance from the end of the pattern to the bottom of the ring is 0.445 inch. The pattern at the right has a sprue 0.40 inch

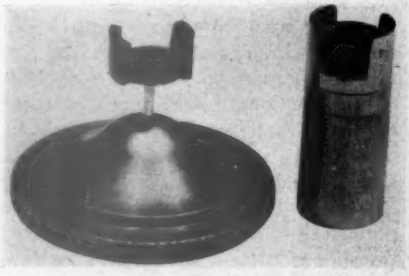


Fig. 3.—Steel die and mounted wax pattern used in this study

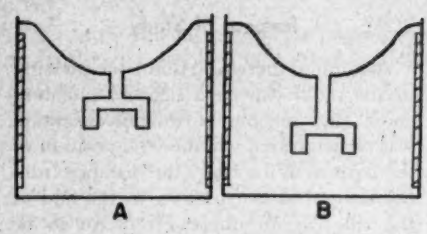


Fig. 4.—Two positions of the wax pattern. The short sprue (A) places the pattern 0.445 inch from the end of the ring and the long sprue (B) reduces that distance to 0.225 inch

in length, with the distance from the pattern to the bottom of the ring being only 0.225 inch. In both cases, the location on the pattern and the diameter of the sprue are the same, a 14 gage (B & S) sprue being used throughout. No reservoir is needed, as a sprue of this diameter and length is amply large to prevent porosity resulting from shrinkage. A photomicrograph will be shown later in the article to substantiate this point. Care was taken when inserting the sprue into the pattern so that there was no excess of wax at the junction of the sprue and the pattern. The orifice at this point must be the same diameter for all castings. As is shown, an asbestos liner was used to line the ring.

If the assumption that the distance from the pattern to the end of the ring is an important factor in obtaining sound and whole castings, then a definite difference should be observed between castings made with a short sprue (*A*) as compared with those made with a long sprue (*B*). The patterns with the long (0.40 inch) sprues are close to the bottom of the ring (0.225 inch), a factor which facilitates escape of the gas in the mold, and those with short (0.20 inch) sprues have double (0.445 inch) the thickness of investment separating the pattern from the end of the ring. If back pressure is present and if it does have any practical significance, evidence of porosity or incomplete regions should appear more readily when the shorter sprues are used.

Since the force of the entering gold is dependent in part on the weight of metal used, the same quantity of gold, 5 pennyweight, was employed for each casting. The burn-out time was constant throughout, twenty minutes at 700 F. and thirty minutes at 1,300 F. A gas-air blowpipe was used, and the temperature of the gold was controlled visually. All castings were studied microscopically, and metallographic specimens were made when it was deemed necessary. Each casting shown here is representative of results which were obtained on a minimum of at least six castings.

Air Pressure

In the first series of tests, all castings were made by means of the air pressure machine shown in Figure 5. The air pressure could be controlled and held accurately by the gage shown. There was no leakage of air around the sides of the ring when the pressure was applied. In the first experiment, the ring used was a Ney inlay ring, which is 1.25 inches in length. Casting pressures of 5, 7½ and 10 pounds were employed, both the short and long sprues being used. All of the castings were solid throughout, and the only detectable difference was in the sharpness of the margins. When short sprues were used at the low pressure of 5 pounds, the margins were definitely rounded; at 7½ pounds they were slightly rounded, and at 10 pounds they were complete and sharp. When the longer sprue was used, there was only a slight rounding of the margins at 5 pounds and none at all for pressures of 7½ and 10 pounds. Thus for this series the use of a long sprue in order to place the pattern close to the bottom of the ring does produce castings with sharper margins for any given pressure below 10 pounds. (Tests for air flow through investment will be discussed later.)

It may be stated then that, when an air pressure machine is employed for casting, the significance of varying the position of the pattern in the ring is theoretical rather than practical. As long as a minimum pressure of 10 pounds is maintained, there is no porosity or rounded margins with sprues of either length. Below 10 pounds, however, there is a detected difference. For any given pressure, with the long sprue, which places the patterns closer to the end of the ring, the castings have sharper margins than with a short sprue. Since there is less investment separating the pattern from the end of the ring, the gas in the mold can escape more readily. Naturally the effects of back pressure would be more noticeable at lower pressure, when the impetus of the entering gold is not great enough to overcome this back pressure of the gas which remains in the mold and investment. At higher pressures, the force of the entering gold is great enough to overcome the back pressure even if the thickness of investment is fairly large.

Myers[6] and others have emphasized that a casting pressure of less than 10 pounds should be avoided. I can detect no particular advantage in increases of pressures from 10 through 20 pounds, but as a safety factor a pressure above 10 pounds should be recommended.

Thickness of Investments

It can be shown readily that this back pressure may become fairly high, even in a ring which is not sealed. If the amount of investment which must be penetrated by the gas in the mold is great enough, the air escapes so slowly that the resulting back pressure will be high enough to prevent a complete casting, regardless of the amount of casting pressure which is used. In other words, the magnitude of this back pressure is proportional to the thickness of investment which separates the pattern and the end of the ring. The next group of castings was made to illustrate this fact. An extra long ring was employed, 3.75 inches in length, which made the thickness of investment between the pattern and the end of the ring 2.94 inches when the short sprue was used and 2.72 inches with the long sprue. The castings, cavity view, are shown in Figure 6. Castings in the top row were made with the 0.20 inch sprue and those in the bottom row with the 0.40 inch sprue. Castings *a* and *e* were made with

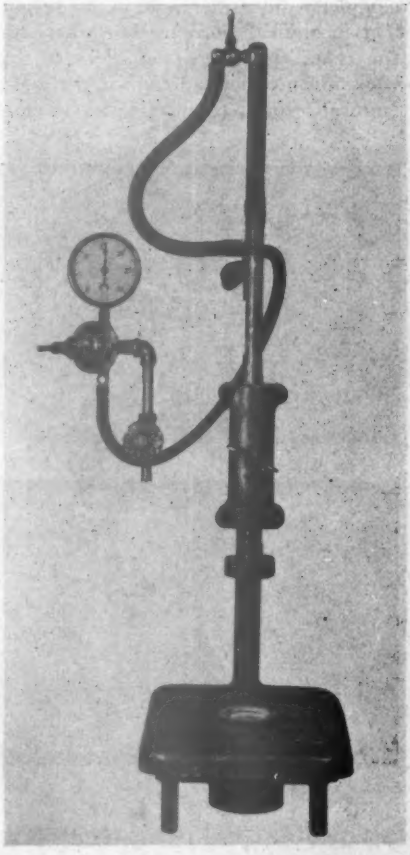


Fig. 5.—Air pressure casting machine used

6. Myers, R. E., and Pfeiffer, K. R., Effect of Varying Conditions on the Time Required to Cast Gold Under Air Pressure. *J.A.D.A.* 27:530 (April) 1940.

5 pounds of pressure, *b* and *f* with 10 pounds, *c* and *g* with 15 and *d* and *h* with 20.

All castings show definite porosity on the cavity surface. For any given pressure, there is no difference in castings made with either a short or a long sprue. The slight difference in the length of the sprue is of no significance when the thickness of investment is so great. Even at 20 pounds of pressure there is extended porosity, which is the result of the failure of gas in the mold to escape through this thickness of investment. The resulting back pressure prevents the gold from completely filling the mold in this region. The incomplete portions shown here are the result entirely of the effect of this back pressure that is present in the mold. Naturally this particular series is more of experimental interest than practical significance since rings of this length usually are not employed for dental castings. It does, however, emphasize that this back pressure, and thus the resulting danger of porosity, becomes greater as the pattern is placed farther from the end of the ring. When the thickness of investment is as great as in this series of castings, 20 or even 30 pounds of casting pressure is not sufficient to overcome the back pressure which is built up.

Gold Solidification

Myers[6] and Souder[7] have shown that the gold completely fills the mold in less than one second from the time that the

7. Souder, Wilmer, Time Required to Cast Dental Restorations From Molten Alloy. *J.A.D.A.* 20:1010 (June) 1933.

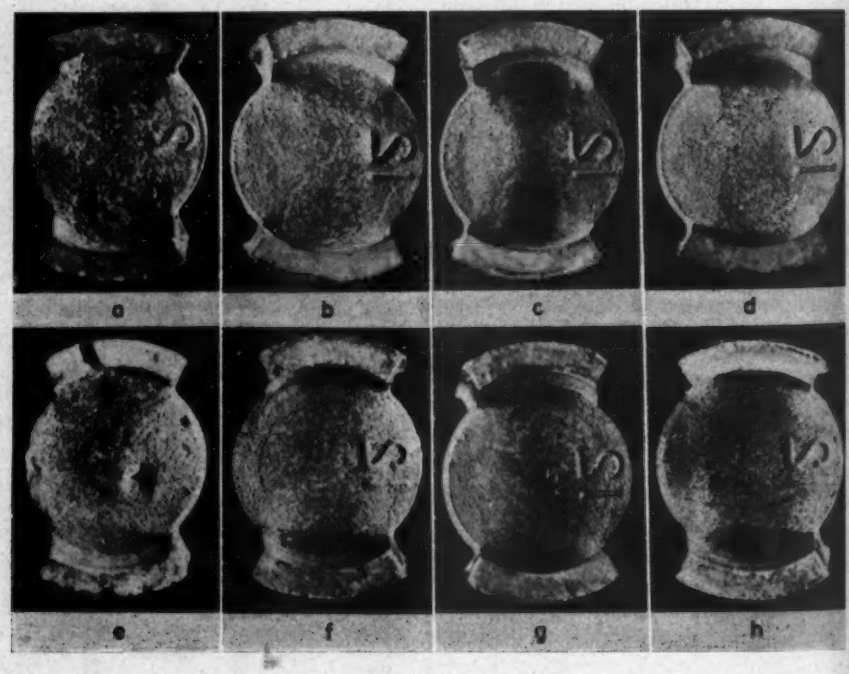


Fig. 6.—Castings made in long ring, 3.75 inches in length. Castings in the top row had short sprues and were cast at pressures of 5, 10, 15 and 20 pounds, going from a to d. Castings in the bottom row had long sprues cast at the respective pressures

pressure is applied. However, no one has offered conclusive evidence concerning the length of time which elapses before the gold completely solidifies. It is probable that for several seconds the gold is in a molten or spongy condition. If this is true and if definite back pressure is present from the gas remaining in the mold, it is extremely important that the casting pressure be maintained until the gold does solidify completely. Should the air pressure of the casting machine be released before complete gold solidification occurs, then this back pressure against the molten gold could prevent a dense casting in that region in which it is being exerted.

The next group of tests demonstrates this fact. In this series, the regular Ney inlay ring (1.25 inches) was used and 15 pounds of air pressure was employed for all castings. Figure 7, top row, shows castings made with the short sprues; the bottom row shows those made with long sprues. In castings *a* and *e* the air pressure was held for one second and then released; in castings *b* and *f* the pressure was held for two seconds; in *c* and *g* three seconds, and in *d* and *h* four seconds. It can be seen that when a short sprue is used, with the pattern 0.445 inch from the end of the ring, the porosity becomes less as the air pressure is maintained longer, progressing from *a* to *d*. However, the casting is not completely solid until the pressure is held for a minimum of four seconds (*d*). By the end of four seconds either the escape of gas from the mold will have lowered the back pressure to a point at which it will no

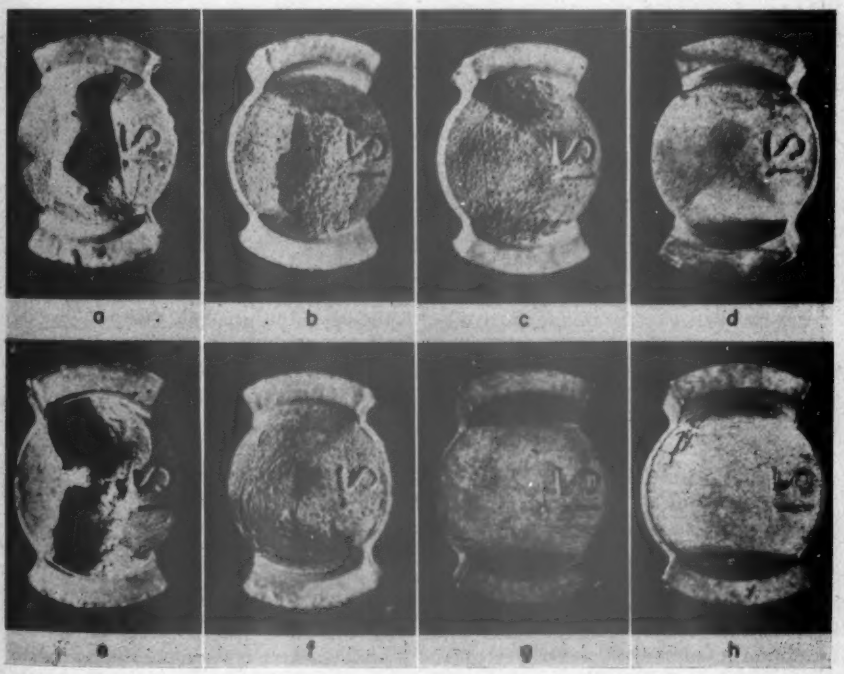


Fig. 7.—Castings in the top row had short sprues, and long sprues were used with the castings in the bottom row. In castings a and e, air pressure was maintained only one second, in b and f two seconds, in c and g three seconds and in d and h four seconds

Fig. 8.—Centrifugal casting machine used in this investigation

longer have any effect on the gold or the gold will have solidified completely. In the case of the long sprue (*e* to *h*), the castings are porous with one and two seconds of pressure but are complete when the pressure is maintained for three seconds (*g*). Thus the time necessary for the air pressure to be maintained is shorter when the longer sprue is used, three seconds as compared with four. This might be expected since more gas would be expelled per unit of time when the pattern is closer to the end of the ring. Since this type of porosity was not found in the previous castings made with this size of ring, this type of porosity can be attributed to the effect of the back pressure in the mold against the molten gold after the casting pressure has been removed. If the casting pressure of 15 pounds is maintained until the gold solidifies, there will be no porosity regardless of the length of the sprue.

These results indicate that the gold does not solidify completely for several seconds after entering the mold, depending of course on the quantity of gold and the size of mold, and that the back pressure exerted by the air in the mold will produce incomplete regions unless the casting pressure is maintained sufficiently long. Since the back pressure is less when a longer sprue is used, the minimum time necessary for retaining the pressure is less. However, as a precaution against this occurrence, the air pressure always should be maintained for at least six seconds before it is released.

The experiments performed with the air pressure machine may be summarized by saying that, when ordinary inlay or crown and bridge rings are used, there is no detectable difference between castings made with either a short or a long sprue if the casting pressure is 10 pounds or more and if that pressure is maintained for at least four seconds. With pressures less than 10 pounds, evidence of rounded margins becomes greater when the shorter sprues are used. This result is attributed to increased back pressure from the added length of investment which must be penetrated by the gas in the mold.

Centrifugal Machine

The Kerr centrifugal casting machine which was used for the next series of experiments is shown in Figure 8. This particular machine was specially equipped with an extra strong spring. The burnout time, type of investment, quantity of gold used and diameter of sprue were the same as in the previous tests.

In the first series of tests, the Ney ring (1.25 inches) was used. Figure 9, top row, shows castings made with the 0.20 inch sprue, and the bottom row shows those made with a 0.40 inch sprue. For castings *a* and *e*, the casting machine was given only one complete turn, with *b* and *f* two turns were used, with *c* and *g* three turns and in *d* and *h* the arm was wound for four complete turns. With the short sprues (top row), the cavity surface is incomplete when one turn is used (*a*), there is some porosity with two turns (*b*) and evidence of a slight porosity for three turns (*c*), as shown by the arrow. The casting made with four turns

(*d*) is complete and dense. When the long sprue is used, thus placing the pattern closer to the end of the ring, a dense casting results with only two turns (*f*), whereas four turns were necessary when the short sprue was employed. Therefore, with a long sprue a dense casting can be made with approximately half the force that is necessary with the short sprue because there is less back pressure to be overcome by the entering gold.

The next series was made in a somewhat longer ring (1.50 inches), and the results are shown in Figure 10. Again as with the previous group, when the short sprue is used, the castings show decreasing porosity as more centrifugal force is used, that is, as the turns are increased from one to four (*a* to *d*). However, with this longer ring, even after four complete turns (*d*), there is still some porosity. If the 0.40 inch sprue is used in order to place the pattern closer to the bottom of the ring, complete solid castings are secured with only three turns (*g*). There is a slight porous region occasionally found in the center of a casting when two turns (*f*) are used on this longer ring, but the castings are always dense with three turns. When the length of the ring is increased, castings made with a short sprue are not as dense as those obtained when the shorter ring is used for the same number of turns (four). This result may be attributed to increased back pressure from the added length of investment which the gas in the mold must penetrate.

The effect of this back pressure seems to be much greater with the centrifugal

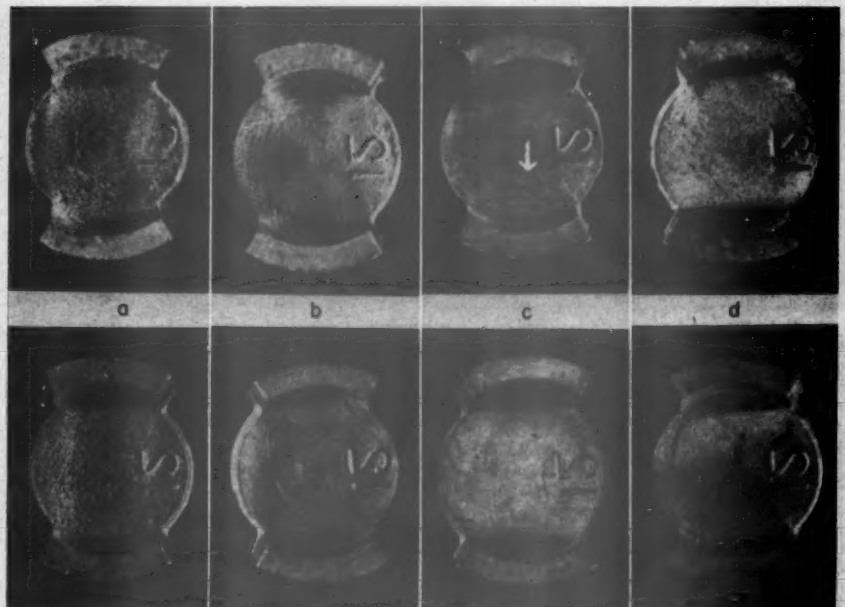


Fig. 9.—Castings in the top row made with the short sprue with one to four turns of the centrifugal machine, going from a to d. Castings in the bottom row made with the long sprue at the respective number of turns

machine than with air pressure. With the air pressure casting machine the only significant difference caused by variation in the length of the sprue was in the sharpness of the margins at low casting pressure, but with the centrifugal machine there are definite large, porous and incomplete regions. With the air pressure machine used, the disk on which the ring rests is perforated and the perforations naturally facilitate the escape of gas from the investment. The back pressure, therefore, would not be so great even when a short sprue is used. With the centrifugal machine, the end of the ring fits flush against the back metal plate. This condition prevents easy escape of gas from the investment and thus increases the back pressure.

To determine whether this were true, a series of castings was made in the centrifugal machine with the ring fixed in such a position that an open space of a half inch remained between the end of the ring and the metal back plate. Much the same effect could be achieved by boring holes in this plate. Results are shown in Figure 11. The castings in the bottom row were made with the position of the ring adjusted to permit room for escape of gas. In the top row the ring was placed in the usual position, flush against the metal back plate. Short sprues were used throughout, and the respective turns of the casting machine are one, two and three. As was seen in Figure 9 and here in casting *c*, with the ring flush against the back plate there is evidence of porosity after three turns. If the ring is placed to allow space for escape of gas (*f*), no porosity results with the same number of turns. In fact, there is only a slight poros-

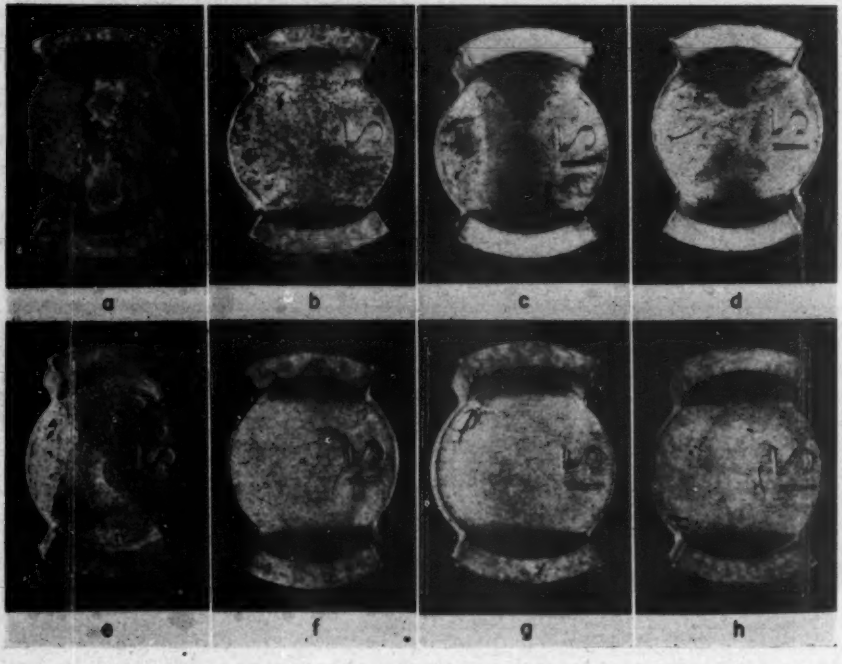


Fig. 10.—Castings made as described in Figure 9, except that a slightly longer ring (1.5 inches) was used

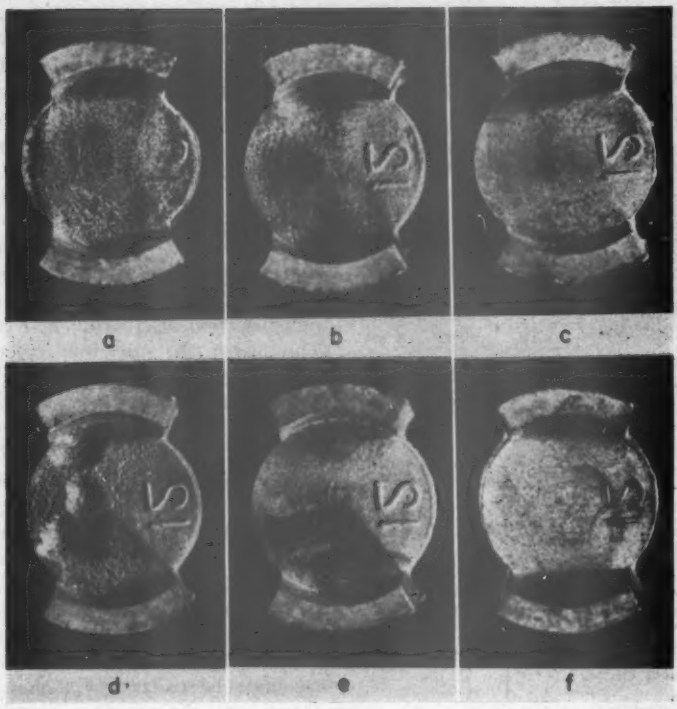


Fig. 11.—Castings in the top row were cast in the usual manner on the centrifugal machine with one, two and three turns of the arm. Castings in the bottom row were made with the position of the ring adjusted to permit room for escape of gas. Short sprues were used throughout

ity with just two turns (*e*). Since dense castings can be secured with less centrifugal force when the position of the ring in the machine permits free escape of the gas, the back pressure must be less. These results then further indicate that the ease with which gas can escape is an important factor, and as the centrifugal machine is by construction such that it does tend to reduce the freedom of gas to escape from the investment, the back pressure will be greater and its effects will be more evident.

Summarizing, with the centrifugal machine if a short sprue is used there is definite evidence of extended porous and incomplete regions unless the casting pressure is great, at least four turns. The number of turns necessary to ensure dense castings with the long sprue is two less, as a result of the closer proximity of the pattern to the end of the ring. If the longer ring is employed, an even greater number of turns is necessary when a short sprue is used but three is adequate with the long sprue. It must be recalled that, since this machine is equipped with a special spring, the differences noted here will be accentuated even more in the average machine in which the strength of the spring is less. As in the case of air pressure casting, the less the force with which the gold enters the mold, the more evident are the effects of back pressure.

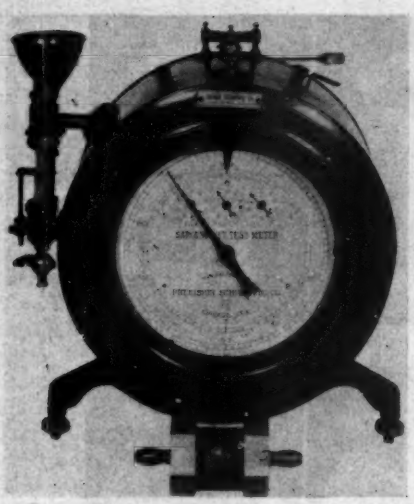


Fig. 12. — Wet test air flow meter (used through courtesy of the J. M. Ney Company, Hartford, Conn.)

It is only by means of heavy force that back pressure can be overcome, particularly when the short sprue is used.

Escape of Gas

Although the evidence of these castings indicates that the rate of the escape of gas from the mold is slower with the short sprue than with the long sprue, it was deemed advisable actually to measure how much faster the gas does escape when the pattern is placed closer to the end of the ring. Since there is no method of measuring the actual back pressure itself, the rate of flow of the gas through the mold gives an indication of the magnitude of this back pressure. The faster the gas escapes, the less will remain and the smaller the back pressure will be. A wet test air flow meter was borrowed from the J. M. Ney Company (Fig. 12). This same type of apparatus was used by Coleman[2] in his studies on the porosity of investments. The determination of the porosity depends on measuring the rate of flow of air per unit of time, for a given pressure, through a plug of the material under test.

The method used was as follows: The investment was poured into the tapered metal ring shown in front of the meter. The wax pattern, with the attached short or long sprue, was inserted and the investment allowed to set. The regular burn-out method was used. Then the plug was removed from the ring and coated with a thin film of collodion, except on the ends, and the inside of the ring was smeared with heavy grease. Thus, when the plug was replaced, this grease prevented leakage of air between the plug and ring and the collodion prevented grease from penetrating into the plug. Air at the desired pressure was applied through the cap with a hose connection, and the rate of flow through the plug, from sprue through the mold, was measured in cubic feet per minute.

The difference in the rate of flow for the two sprue lengths with various casting pressures is shown in the accompanying table. For any given air pressure, approximately twice as much air flows through the plug in one minute with the long sprue as with the short sprue. For example, at 5 pounds of pressure, 0.10 of a cubic foot passes with the long sprue but only 0.05 of a cubic foot with the short sprue. These results show that the gas in the mold escapes twice as fast when the long sprue is used since the pattern is closer to the bottom of the ring. Therefore, the resulting back pressure would be approximately only half as great as when the short sprue is used. The practical significance of this difference in back pressure already has been shown in the castings made, particularly when the centrifugal machine is used.

Photomicrographs of Specimens

Metallographic specimens were made of typical castings in order to determine the extent of this porosity and to show that it is not related in any way to porosity resulting from shrinkage. Although

shrinkage porosity does result from the use of long, thin sprues, the gage (14 B & S) and the length which were used prevent freezing of the metal in the sprue before it completely fills the mold. A photomicrograph (×40) of an unetched cross section is shown in Figure 13. This casting was made with a sprue 0.40 inch in length and with one turn of the centrifugal machine (casting *e* in Fig. 9). At the base of the sprue at the point at which it is attached to the casting, shown by the arrow, the casting is solid and dense. This is the region in which shrinkage porosity would occur. However, at the bottom of the casting, on the cavity surface, porosity can be seen. The location and appearance of this porosity indicate that it must be attributed to the effects of the back pressure of gas remaining in the mold and investment. In this case, the back pressure is great enough to prevent the gold from filling in solidly in this region. This porosity is therefore entirely separate from porosity resulting from either shrinkage or occluded gas. Figure 14 shows a higher magnification (×125) of the same casting at the junction of the proximal wall with the cavity surface. As can be seen, although the porosity is fairly extensive it does not penetrate through the entire casting. However, on a thinner section it might easily do so.

Two investments were used, Cristobalite and R & R Gray, with the same results. When the air flow was measured by the meter, there was no appreciable difference in the rate of air flow through the two investments.

It must be emphasized again that the results given here represent the average of many individual castings. Although this article has dealt with the general trend, different results occasionally might be found between individual castings. Conclusions on what may be generally anticipated can be drawn only after observation on many castings; for, as Herbert and Thompson[8] reported, sometimes successful castings can be made even when a ring which is sealed tightly at one end is used. However, that is the exception, not the rule.

Conclusions

1. There is no difference in castings

8. Herbert, W. E., and Thompson, A. R. F., Research on Gold Casting. *Odonto. Soc., Roy. Soc. Med. Tr.* 30:245, 1936-1937.

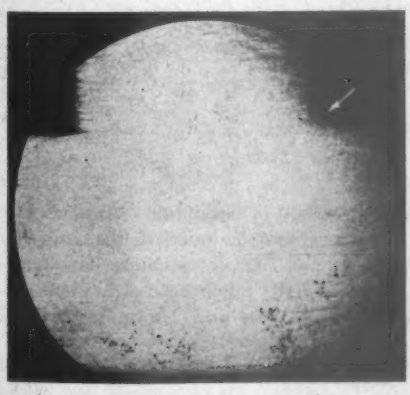


Fig. 13.—Porosity on cavity surface as a result of back pressure. The arrow shows the point of attachment of the sprue to the casting (magnification ×40)

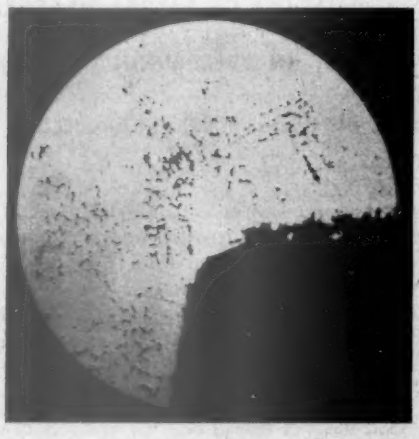


Fig. 14.—Higher magnification of porosity (×125)

Air flow through mold with sprues of two lengths

Length of sprue	Air pressure, in pounds	Air flow, in cubic feet per minute (average)
5 mm.	5	0.05
5 mm.	7½	0.08
5 mm.	10	0.12
5 mm.	15	0.15
10 mm.	5	0.10
10 mm.	7½	0.17
10 mm.	10	0.22
10 mm.	15	0.33

made with either a short or a long sprue when an air pressure machine is used with a pressure of 10 pounds or more. With pressures of less than 10 pounds, evidence of rounded margins is more pronounced when the short sprue is used. The gas in the mold escapes more rapidly when the longer sprue is used, resulting in less back pressure present in the investment.

2. An air pressure of more than 10 pounds should be employed to overcome the action of this back pressure.

3. The gold in the mold does not solidify completely for several seconds after the air pressure has been applied. Since the back pressure will prevent complete filling of the mold if the air pressure is released before the gold has solidified, the casting pressure must be maintained for at least six seconds.

4. When the long sprue is used, complete and dense castings can be made in a centrifugal machine with only half the number of turns which are required with the short sprue.

5. Porosity due to back pressure is much more evident in centrifugal casting than in air pressure casting. In centrifugal casting the gas in the mold cannot escape as readily as in air pressure casting, and the back pressure is therefore greater.

6. Flow of air through the mold as measured by a gas flow meter is twice as rapid with the long sprue as with the short sprue.

7. Photomicrographs show that this porosity is not connected in any manner with shrinkage porosity. — *1121 West Michigan Street.*

USE OF FACIAL MEASUREMENTS IN DETERMINING VERTICAL DIMENSION

George Franklin McGee, D.D.S., San Francisco

THE successful construction of a set of artificial dentures depends on the precision with which each step in the procedure is accomplished. Any step based on guesswork not only would be unscientific but also would be a potential cause of failure.

A method of obtaining vertical dimension is seldom included in the presentation of any denture technic. This omission is usually taken care of in one short sentence: "You now obtain vertical dimension."

It is an accepted fact that a true centric relation should always be incorporated in dentures, for it is to this position that all functional movements of the mandible must return. This position

Read at the twelfth annual meeting of the Pacific Coast Society of Prosthodontists, San Francisco, April 26, 1947.

Assistant clinical professor of denture prosthesis, College of Dentistry, University of California.

is actually three dimensional; the vertical dimension or intermaxillary distance must be considered as well as the lateral and anteroposterior relations.

It is important that no arbitrary procedure be used in obtaining this relation, for an error introduced here will naturally affect the success of the finished dentures. Many articles in the last few years have stressed this point. Tench[1] said:

> The ease with which immediate dentures are worn, when the natural vertical dimension is accurately copied, is proof of the wisdom of avoiding bite-opening procedure beyond that permitted by the natural functioning length of the muscles of mastication as related to the resistance of the alveolar bone to muscle tension in function for a given individual.

In those cases in which the patient is able to tolerate an abnormal overopening, the muscle pull will return the mandible to its correct position at the expense of the supporting tissues. Therefore it becomes apparent that some exacting method must be used to establish the correct vertical dimension for each individual patient before centric relation can be obtained.

Two Vertical Dimensions

There are, of course, two vertical dimensions: one when the teeth are in occlusion, and the other when the teeth are separated and the mandible is in a physiologic rest position. Although the first, the occluded position, is subject to change resulting from loss of the teeth, nature makes a great effort to maintain this position. Many elderly patients with their natural teeth still present, but definitely abraded, have been found to have maintained their original functional vertical dimension. The continued elongation or eruption of the teeth could account for this condition. It could also influence the diagnosis in older patients when roentgenograms show an even vertical atrophy of the supporting tissues.

The second, the physiologic rest position, remains the same throughout life regardless of the presence or absence of the teeth. This last statement has been recognized in articles by Niswonger,[2] Gillis,[3] Thompson[4] and Brodie.[5] Brodie's cephalometric studies on the growth of the head show that the muscles alone are responsible for the position of the mandible, and it is probable that any forced change would have an undesirable result.

At the College of Dentistry, University of Illinois, ninety cephalometric examinations were made. These records were taken before the teeth were extracted, after extraction, when the dentures were made and at six month intervals thereafter. Conclusions arrived at were: (1) there was no loss of physiologic denture space; (2) sagging of the face and lips, entirely as a result of lack of support when teeth were extracted, was present, and (3) in cases in which there was overopening, normal vertical dimension returned in time in all instances as a result of obvious resorption of supporting structure.

It should also be pointed out that excessive vertical dimension is not the only cause of resorption of the supporting tissues but can be one of the causes. Overclosure of functional vertical dimension could also result in undesirable effects, such as disturbances of the temporomandibular joint, pain and burning sensations in the tongue and oral tissues and loss of normal appearance of the lower third of the face. Nature's intolerance to deviations from the normal is

1. Tench, R. W., Dangers in Dental Reconstruction Involving Increase of the Vertical Dimension of the Lower Third of the Human Face. *J.A.D.A.* 23:566 (April) 1938.

2. Niswonger, M. E., The Rest Position of the Mandible and the Centric Relation. *J.A.D.A.* 21: 1572 (September) 1934.

3. Gillis, R. R., Establishing Vertical Dimension in Full Denture Construction. *J.A.D.A.* 28:430 (March) 1941.

4. Thompson, J. R., The Constancy of the Position of the Mandible and Its Influence on Prosthetic Restorations. *Illinois D. J.* 12:242 (June) 1943.

5. Brodie, A. G., Growth Pattern of Human Head from Third Month to Eighth Year of Life. *Am. J. Anat.* 68:209 (March) 1941.

therefore manifest in loss of supporting tissue, in discomfort and in dissatisfaction. These results would tend to prove that the term "bite opening" found extensively in dental literature is incorrect. The bite cannot be opened, but the lost vertical dimension can be restored.

Methods in Use

Following are some of the methods to obtain vertical dimension that are in use at the present time. Many operators use a combination of these and other methods to secure the desired results.

1. Phonetics: Certain letter and word sounds made by the patient are used to determine denture space and free way space. Overextended base plates or incorrect wax contour rims could cause error.

2. Unstrained lip contact: This method is often combined with the phonetics test. Biterims must be correctly contoured and overextension corrected. Since the physiologic rest position is also an unstrained position, the result can easily be an overopened denture space.

3. Allowing the patient to determine the most comfortable position: This method shifts the responsibility to the patient. Crowding the mouth with biterims usually produces an overclosed position before any degree of comfort is attained.

4. Swallowing to produce the upper limit of the free way space: This method would probably prevent overopening but offers no positive check on overclosure.

5. Mounted parallel edentulous ridges: This is a good check on well formed ridges but would be impossible to rely on when extensive resorption is present.

6. Mechanical devices: These devices produce approximate results but are impossible to use in all instances.

7. Cephalometric method: This method is scientific when records are made before extraction of teeth, but there is chance of error if pre-extraction records are not obtained. The equipment is not available to the average dentist.

To secure more accurately the normal vertical dimension, a method based on measurement would be the logical answer. As Lord Kelvin[6] stated in 1883:

> I often say that when you can measure what you are thinking about and express it in numbers, you know something about it, but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meager and unsatisfactory kind. It may be the beginning of knowledge, but you have scarcely in your thoughts advanced to the stage of science, whatever the matter may be.

It is true that many of the steps in denture construction, sometimes for good reason, are accomplished in an empirical manner. However, when any of the procedures can be placed on a more rational or scientific foundation and supported with sound clinical data, results certainly should be reflected in a more satisfied patient and in improvement in the operator's skill and judgment.

About five years ago, it was brought to my attention that it might be possible to use facial measurements of anatomic landmarks in establishing vertical dimension. On the basis of this suggestion, many hundred meaurements of patients and students were taken over a period of three years in the dental clinic of the University of California. In order to study and prove the method, all measurements were taken of persons with complete natural dental arches. The vertical dimension was taken with the teeth in centric occlusion because this method is easier and more accurate. The dimension of the physiologic rest position is always greater than vertical dimension and therefore would be included automatically in the measurement. The average difference between these two positions is from 2 mm. to 3 mm. It was found that every face, with the possible exception of the easily recognized anomalies, when measured between cer-

6. *Photo-Data Book.* General Electric Co., 1945, p. 6.

tain anatomic landmarks, showed a definite matching pattern or relation. Owing to the fact that vertical dimension is one of the measurements taken, the accuracy with which it matches the other measurements, under certain definite conditions, makes it possible to determine vertical dimension in edentulous patients.

At first, before the technic has been tried, it may seem a complicated process. However, when directions are followed accurately, the procedure becomes simple and is quickly accomplished. Within five minutes' time or less, the operator should be able to determine the following measurements: (1) vertical dimension for that individual patient; (2) relation of natural anterior teeth: (a) normal, (b) overjet and overbite and (c) edge to edge, and (3) in certain instances, the vertical inclination (labiolingual inclination of anterior teeth). These measurements may be taken at the time of the original examination in order to help in the diagnosis and future treatment of the patient. However, the most opportune time to take them is when these data are most needed, that is, when the vertical dimension is being determined, before centric relations are ascertained.

To obtain these measurements, all that is necessary is a flexible millimeter ruler. Flexibility is necessary because one of the measurements (number 3) is taken as a curve. The ruler is cut off at the first millimeter mark, in order, as will be shown later, to measure accurately the anatomic landmarks (Fig. 1).

Measurements

The following measurements are obtained:

1. From the center of the pupil of the eye to the stomion (junction of the lips in the median line) (Fig. 2, left). The patient's eye is at the same level as the operator's eye, and the operator's finger under the ruler rests on the face to steady it. The upper edge of the ruler bisects the pupil horizontally, and the ruler is moved as close to the nose as possible. Holding the ruler in this position, the operator lowers his head until his eyes are opposite the lower measuring point and the reading is taken. This procedure eliminates error due to parallax, which is an apparent displacement of an object owing to a change in the position from which it is observed. Care must be taken to use the junction of the lips at the median line and not the corner of the mouth.

2. From the glabella to the subnasion (Fig. 2, right). The left index finger is placed on the glabella (the most prominent point in the median line between the two eyebrow ridges). The end of the ruler is slipped under the finger and held on this point. The reading is taken at the subnasion (the angle between the septum and the surface of the upper lip).

3. From corner of mouth to corner of mouth (cheilion to cheilion) (Fig. 3, left). The ruler is bent to follow the curve of lips at their line of junction. Slight contact is made by the ruler and the lower lip.

Fig. 1.—Anatomic landmarks used in obtaining various facial measurements: g, glabella; sn, subnasion; sto, stomion; ch, cheilion; gn, gnathion

When these three measurements are taken, the matching pattern referred to previously will become apparent. Invariably two measurements will be equal, and often all three will be the same. In all cases, the two equal measurements or the three equal measurements will be the same as the unknown vertical dimension.

Vertical dimension is measured from the subnasion to the gnathion (the most anterior point on the median line of the lower border of the mandible). The gnathion is found as shown in Figure 3, right. In many patients it is covered by a certain amount of soft tissue that must be displaced by the thumb. The line formed by the finger and the lower border of the mandible locates the point to be measured. The maximum vertical dimension recorded to date is 85 mm. and the minimum is 55 mm. The average is usually found to be between 65 and 70 mm. When two of the three facial measurements are the same, the third always differs by 5 mm. more or less, thus making the difference easily ascertainable. The accompanying table shows a portion of the many hundred typical measurements taken and the relation of the anterior teeth recorded. All records are based on the metric system with measurements made in millimeters. Normal relation means 3 mm. or less from the labial surface of the upper central incisors to the labial surface of the lower central incisors, the posterior teeth being in occluded centric relation.

At this point, when biterims have been constructed and contoured and the jaws are held in the vertical dimension selected, it will be found by use of the methods employed heretofore (relaxed lips touching, lack of strained appearance, correct space between rims after sounding the letter "m" or after deglutition) that this position is correct, provided bases are not overextended caus-

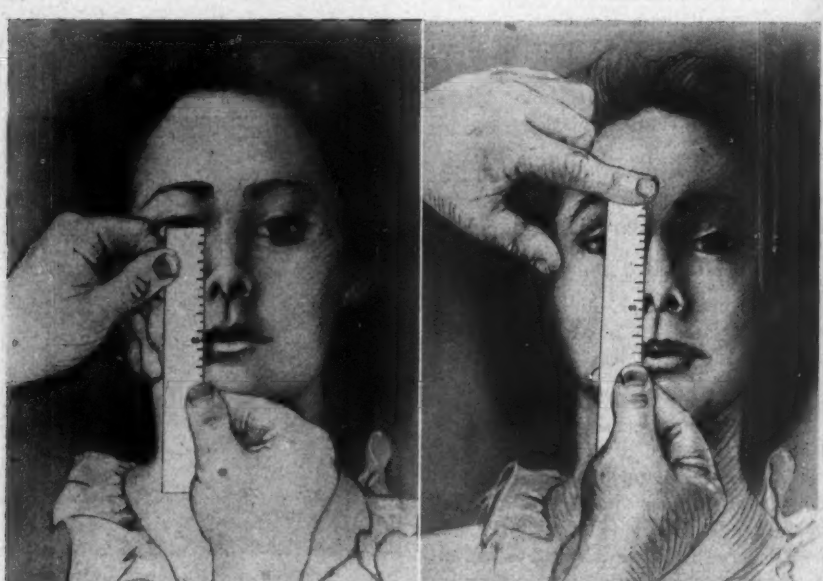


Fig. 2.—Left: Measurement from the center of the pupil of the eye to the stomion. Right: Measurement from the glabella to the subnasion

ing distortion and a false check. The essential free way space will be present in the finished denture. The free way space may be checked by measuring the vertical dimension without the biterims in place, with the patient assuming the normal comfortable position of the mandible after deglutition. The patient is able to do this because of the memory of the muscles that control this rest position. When measured, this rest position will be found to be approximately 2 mm. greater than the occluded biterim position.

Now if we have determined the true vertical dimension for a given patient, can we always use it without exception? What about the elderly patient who has worn dentures for many years and whose functional bite has definitely closed? Discretion and the degree of toleration of the patient will govern the amount of opening restored if only one set of dentures is within the financial limits of the patient. If the normal vertical dimension is known, use of it in this and similar instances must be tempered with good judgment.

It has been noted by many dentists in the past that the distance between the pupil of the eye and the junction of the lips is often equal to the vertical dimension, but, as Schweitzer[7] stated, this measurement is not always reliable. In the method presented here, any two of the three measurements taken can be equal to the vertical dimension, making it possible for any one measurement to be unequal. Therefore the distance from pupil to mouth is often not equal to the vertical dimension.

It is this equality or inequality of the three measurements that supplies the information needed to support the second point of this paper, namely, the relation of the anterior teeth.

7. Schweitzer, J. M., The Vertical Dimension. *J.A.D.A.* 29:419 (March) 1942.

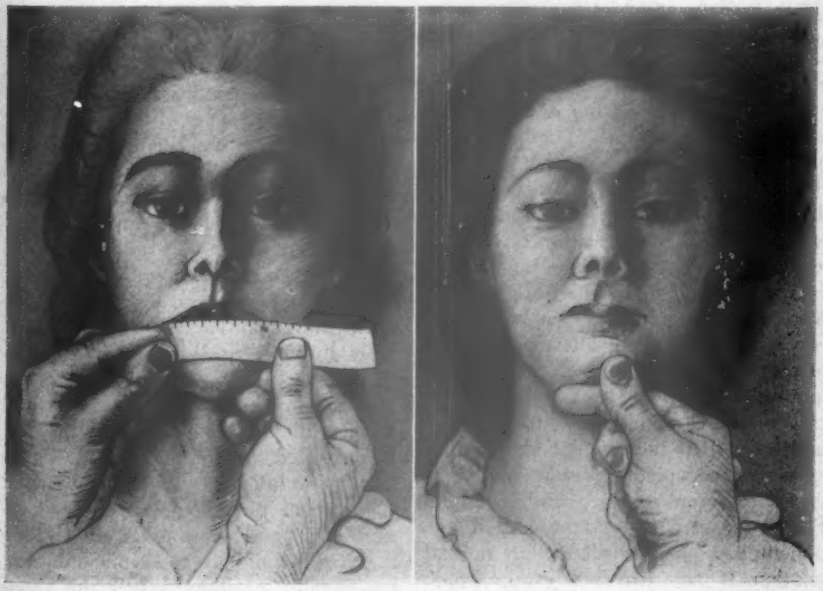


Fig. 3.—Left: Measurement of distance from corner of mouth to corner of mouth. Right: Locating the gnathion

Relation of Anterior Teeth

The matching patterns of the measurements were found to give the following information:

A. Normal: When measurement 1 matches measurement 2, that measurement indicates vertical dimension. Measurement 3 may be greater or smaller (Table, examples 1 and 24).

B. Overjet and overbite (approximately 3 mm. or more):

Type 1. When measurement 1 equals measurement 3, that measurement indicates vertical dimension. Measurement 2 is greater (Table, example 33).

Type 2. When measurement 2 equals measurement 3, that measurement indicates vertical dimension. Measurement 1 is greater (Table, example 41).

C. Edge to edge: When all measurements match, that measurement indicates vertical dimension (Table, example 2).

Presented here are only five of the seven possible matching patterns. In Class B, Type 1, measurement 2 could also be smaller than 1 and 3. In Type 2, measurement 1 may be smaller than 2 and 3. The infrequency of occurrence of both of these possibilities does not supply sufficient data for either to be included with any degree of accuracy at this time (Table, examples 10 and 12).

In many instances relation of the anterior teeth is not a problem, but the following example should be found useful. A patient may remark, "Yes, that is a very nice set of teeth, but you know, it just doesn't look like me, and I can't tell you why." In one instance edentulous casts mounted on an articulator gave the impression that the original teeth before extraction occupied a position that presented a large overjet and overbite. Facial measurements showed that the patient had anterior teeth with normal relation. If these two facts were so, then the upper anterior teeth would have to be placed in such a position that the gingival portion was labial to the incisal edge. Observation shows that many natural upper anterior teeth are set in this position, but without pre-extraction records to determine this condition few of us would satisfy the patient with a set of dentures constructed in the usual manner (Fig. 4).

It is also possible for the lower anterior teeth to be inclined lingually, giving a definite effect of mandibular protrusion in the edentulous state (Fig. 5).

Exceptions

There are two exceptions found in this method of facial measurements, and each can be recognized easily. The first exception includes the anomalies that are sometimes encountered. Thompson[8] stated:

> There is no truly symmetrical face. Normal asymmetry is not very evident. Abnormal asymmetry is quite obvious and its infrequency of occurrence puts it in a class to be treated by itself.

The second exception is found in those persons who have a greater than average development of the lower third of the face. This condition frequently occurs in all three types of tooth and ridge development. It has been found that to the vertical dimension obtained by facial measurements 10 mm. must be added in all cases in which this apparent overdevelopment exists. To add exactly 10 mm. in these cases sounds unscientific, but it has been proved clinically true again and again over a period of five years. Future records may refine this conclusion.

How can this condition be ascertained in edentulous patients? When the face is measured to obtain vertical dimension, the result is always checked against the normal physiologic vertical dimension. The patient is asked to swallow and to allow the jaw to assume a natural, comfortable position. When this meas-

8. Thompson, J. R., Asymmetry of the Face. *J.A.D.A.* 30:1839 (December 1) 1943.

52 facial measurements and relation of anterior teeth

Case	Facial measurements, in mm.				Relation of anterior teeth		
	1	2	3	Vertical dimension	A	B	C
	Pupil to stomion	Glabella to subnasion	Cheilion to cheilion	Subnasion to gnathion	Normal	Overbite, overjet	Edge to edge
1	65	65	60	65	x		
2	60	60	60	60			x
3	70	70	55	70	x		
4	75	75	65	75	x		
5	70	65	65	65		x	
6	80	80	65	80	x		
7	76	76	65	76	x		
8	65	65	60	65	x		
9	77	77	66	77	x		
10	65	70	70	70	x		
11	75	75	60	75	x		
12	75	65	75	85*		x	
13	70	70	65	70	x		
14	75	75	60	75	x		
15	76	76	65	76	x		
16	65	65	60	65	x		
17	80	80	65	80	x		
18	75	75	70	75	x		
19	70	70	65	70	x		
20	70	70	65	70	x		
21	75	75	70	75	x		
22	65	65	60	65	x		
23	70	65	70	70	x		
24	65	65	70	65	x		
25	65	65	60	65	x		
26	75	75	65	75	x		
27	70	70	65	70	x		
28	65	65	60	65	x		
29	65	65	65	75			x
30	68	68	62	68	x		
31	65	65	70	65	x		
32	65	65	60	75*	x		
33	65	75	65	65		x	
34	70	70	60	70	x		
35	70	70	65	70	x		
36	70	70	65	70	x		
37	65	80	65	65		x	
38	70	70	65	70	x		
39	70	70	65	70	x		
40	65	70	65	65		x	
41	75	70	70	70		x	
42	70	70	80	70	x		
43	70	70	65	70	x		
44	72	72	65	72	x		
45	70	70	60	70	x		
46	65	65	70	65	x		
47	65	70	65	65		x	
48	67	67	67	67			x
49	70	65	65	65		x	
50	65	65	60	65	x		
51	85	85	78	85	x		
52	75	70	70	70		x	

*Ten millimeters added.

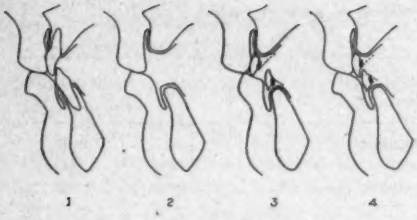


Fig. 4.—Relation of anterior teeth: 1, natural teeth present. The labial surfaces of the upper teeth incline lingually, but the incisal edges are in normal relation with the lower anterior teeth. 2, jaw shown in 1, with teeth removed. If dentures were constructed in this case, it could easily be assumed from the position of the residual ridges that a large overjet had been present. 3, position in which teeth are most often set when this condition exists. Note the resulting change in the contour of the lip. 4, artificial teeth set in the same relative position occupied by the natural teeth. The normal appearance of the lips is restored

urement is taken and found to be approximately 10 mm. more than expected, the exceptional case is found. This step should be repeated three or four times in order to dispel any doubt in the operator's mind. If the measurement each time is 10 mm. more than the other two or three facial measurements that match, then 10 mm. must be added to the vertical dimension obtained from the facial measurements. To date, 5 per cent of the measurements taken were found to be in this classification.

Conclusions

It is impossible to obtain true centric relation without having first established the correct vertical dimension.

It is possible, by the use of facial measurements, to determine accurately the vertical dimension in constructing a set of artificial dentures. This method is also useful in checking in any case in which loss of vertical dimension is suspected.

A "bite" cannot be opened. Lost vertical dimension can be restored.

A great psychologic advantage is gained when the operator is able to describe to the edentulous patient the general appearance and relation of the natural teeth.

The presence of a definite overjet and overbite of the anterior teeth does not indicate a closed bite. Because of the frequency of occurrence, it is possible that this condition is purely hereditary and is normal in certain persons.

Correct vertical dimension must be incorporated into every set of artificial dentures. Overclosure can result in extreme discomfort and a collapsed appearance of the lower third of the face during mastication. Overopening will probably result in failure of the dentures. Even if the patient is able to tolerate this abnormal overopening, the muscle tension will return the mandible to the correct position at the expense of the supporting tissues.

Nature's method of maintaining normal vertical dimension in older patients with definitely abraded teeth needs further investigation.

The cephalometer can be used to great advantage to determine the correct vertical dimension in edentulous patients. This equipment is expensive and not available to the average dentist.

The method advocated here entails no expense and, with care and practice, should produce consistent results within an accuracy of 1 mm.—*450 Sutter Street.*

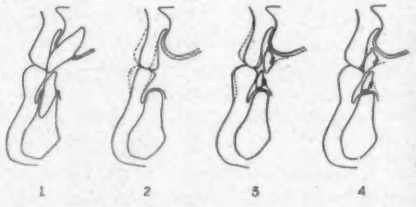


Fig. 5.—Lower anterior teeth inclined lingually: 1, cephalometric tracing; 2, same case, with teeth removed, showing the lips collapsed inwardly. 3, if artificial teeth are positioned by ridges alone, the lower teeth would be set anterior to the upper teeth. The lower lip would have a thickened, protruding appearance, while the upper lip would be thin and weak. 4, artificial teeth set in the position occupied by the natural teeth

THE Journal OF THE
AMERICAN DENTAL ASSOCIATION

SEPTEMBER 1, 1947 • VOLUME 35 • NUMBER 5

LON W. MORREY, D.D.S., *Editor*

Published by the American Dental Association • 222 East Superior St. • Chicago 11, Ill.

EDITORIALS

THE EIGHTY-EIGHTH SESSION OF THE AMERICAN DENTAL ASSOCIATION

THE eighty-eighth session of the American Dental Association, which met in Boston August 4-8, was, in every respect, one of the most successful ever held by the Association. Augmented by the Tenth International Dental Congress it attracted members from every state in the union and drew representatives from the principal countries in Europe, Asia, Africa and Central and South America. Total attendance was more than 10,000.

A report of many of the actions taken by the House of Delegates and by various committees is published elsewhere in this issue of THE JOURNAL. Reports of the actions of other committees will be published later. President Sterling V. Mead's message to the House of Delegates, in which he summarizes many of the problems that confront the dental profession, also is published in this issue.

The meetings of the House of Delegates and the Board of Trustees, as well as the two general sessions, were held at the Hotel Statler. The Tenth International Dental Congress divided its meetings between the Hotel Statler and the Hotel Somerset. Historic Mechanics' Hall housed the eleven scientific sections, the scientific and health exhibits, the technical exhibits, the general clinics and the motion picture theater. One hundred forty-six essays, the largest number ever prepared for one national dental meeting, were delivered in the scientific sections. One hundred twenty-five technical exhibits, featuring well over a million dollars worth of the latest dental equipment, were displayed by dental manufacturers and dealers. Sixty-five scientific and health exhibits and 329 general clinics crowded to capacity the limited facilities of Mechanics' Hall.

Guest speakers at the general sessions were A. E. Rowlett, of Leicester, England, president of the *Fédération Dentaire Internationale,* which sponsored the Tenth International Dental Congress; the Honorable Joseph W. Martin, Jr., of Massa-

chusetts, speaker of the House of Representatives of the United States, and the Honorable Leo E. Allen, of Illinois, chairman of the Committee on Rules of the House of Representatives. The dinner held in honor of President Mead on Wednesday evening, the official dinner of the *Fédération Dentaire Internationale* on Thursday evening and the several banquets and luncheons held by the associated groups constituted the principal social events.

Although the registration at the eighty-eighth session was one of the largest ever recorded at a meeting of the American Dental Association, attendance alone is not the standard by which the merit of a meeting should be judged. Quality of program is even more important than registration figures. The program committee is to be commended for the exceptionally high character of the essays, clinics and exhibits presented at this year's session. Without detracting from the accomplishments of the committees, it must be pointed out that six years have elapsed since the last full scientific session of the Association. During those six years, many new and valuable developments have taken place in dental research, caries control, dental therapeutics, maxillofacial surgery, dental education and socio-economics. Thus program chairmen had the advantage of drawing on six years of accumulated developments, and each chairman took full advantage of that opportunity.

Of particular import was the interest in dentistry for children manifested at this year's session. The intense activity of the Council on Dental Health during the past several years has helped immeasurably to stimulate interest in pedodontics. Slowly—far too slowly, it must be admitted—dentists are awakening to the importance of providing more dental service to children. In his message to the House of Delegates, President Mead deplores the fact that the profession's interest in pedodontics is progressing so slowly. He reiterates that dental health services must be extended to more children; that no child should be deprived of dental care, and that the extension of good dental care to all children is the greatest and most important problem of the dental profession today. He advocates that every dentist be enrolled in a campaign to provide more dental health service to children. The best method for accomplishing this, he states, is through the establishment of state and local councils on dental health. Not until dentistry has solved the problems of providing adequate preventive dental service for children can the profession rightfully claim that it is meeting fully its obligation to the public.

In addition to focusing attention on the necessity of improving dental services for children, President Mead points out a number of other problems that must be solved soon by the profession. These problems lie in the field of socio-economics, research, legislation and public, professional and international relations. He pleads for closer cooperation among national, state and component dental societies in order that the profession may present a united front on all matters affecting dentistry. Uniformity of thought and action is essential if dentistry is to obtain better legislation, adequate funds for dental research, better training for ancillary personnel, more harmonious relations with associated groups and greater representation in international dental organizations.

Those members who were unable to attend the eighty-eighth session of the American Dental Association were deprived of a great privilege. However, by reading the reports of the official actions published in this and later issues of THE JOURNAL, members will obtain a summary of dentistry's accomplishments to date. From President Mead's message members will secure a comprehensive idea of many of the problems that now face the profession—problems that must be solved in the immediate future in order that dentistry may increase its services to society.

COMMUNITY CHESTS BEGIN ANNUAL CAMPAIGN

NEXT month 1,000 American communities will conduct their annual Community Chest campaigns. By coordinating their efforts the Community Chests expect to raise approximately $168,000,000. This money will be used to finance more than 12,000 community services, or Red Feather services, as they are popularly known. Most of the money will be spent locally to meet local needs. All of it will be spent as the local community thinks best; that is, in accord with the decision of local budget committees. No national fund will be raised. This plan of operation is in accordance with the philosophy of the American Dental Association that local needs should be met, wherever possible, by local resources.

More than $55,000,000, or approximately one third of the proposed fund, will be spent for youth services, such as boys' clubs, Boy Scouts, Girl Scouts, summer camps and neighborhood houses. Almost $29,000,000 will be spent for the care of children in foster homes, institutions and day nurseries. Some $33,000,000 is scheduled for family services, assistance to the handicapped and adult vocational aid. Approximately $15,000,000 will be devoted to health services, including medical, dental and nursing care, child guidance clinics and fresh air camps for handicapped children. The remainder of the fund will be expended for the care of the aged, community planning, Americanization activities and administration.

The Community Chest has become an integral part of American life. Community service organizations, supported mainly through voluntary contributions of those living in the community, can no longer be considered dispensers of charity. Red Feather services that give children and youth an opportunity to become good citizens cannot be called charity. Programs that provide, at community expense, dental, medical and nursing services for those who are in need cannot be viewed as charity. They are an investment in human resources. They are practical measures by which the community can improve its own welfare. Every person in the community, directly or indirectly, benefits from community Red Feather services. A donation of $1.25 from each of America's 142,000,000 people will more than meet the anticipated figure of $168,000,000.

The Community Chests of America may be assured that the members of the dental profession will again contribute more than their share in this campaign.

H. B. Washburn
President
1947-1948

H. B. Washburn, president of the American Dental Association, was born June 8, 1884, in Red Wing, Minn. He was graduated from the Dental School, Northwestern University, in 1905 and entered general practice in Zumbrota, Minn. In 1914 he went to St. Paul, where he practices general dentistry at the present time. Since entering practice he has been active in the affairs of organized dentistry. He has been president and secretary of the St. Paul District Dental Society and president of the Minnesota State Dental Association. In 1926 he was chairman of the Full Denture Section of the American Dental Association. In 1940 he was elected a member of the Board of Trustees from the Tenth District and served two terms

Clyde E. Minges
President-Elect
1947-1948

Clyde E. Minges, new president-elect of the American Dental Association, was born August 7, 1891, in Newton, N. C. He was graduated from Cades High School, Williamsburg County, and studied at Horner's Military Academy and Richmond College. He was graduated from the School of Dentistry, University of Louisville, in 1919 and entered general practice in Rocky Mount, N. C. He has been president of the Rocky Mount Dental Society, president and secretary of the Fifth District Dental Society of North Carolina, president of the North Carolina Dental Society and president of the North Carolina Board of Dental Examiners. He was elected to the Board of Trustees of the American Dental Association in 1941 and has served two terms

Members of the Board of Trustees at their meeting during the eighty-eighth session of the American Dental Association, Hotel Statler, Boston, are (left to right): Fred S. Shandley; LeRoy M. Ennis; Robert P. Thomas; Edward J. Jennings; Harold Hillenbrand, general secretary; C. Willard Camalier, assistant secretary; Sterling V. Mead, president; H. B. Washburn, president-elect; R. H. Volland, treasurer; Harold W. Oppice; C. J. Wright; J. B. Carr; R. C. Dalgleish, and Willard Ogle. Standing: C. S. Foster; Henry Hicks; William McGill Burns, and Lon W. Morrey, editor. Absent, Clyde E. Minges

George F. Lull, Chicago, secretary and general manager of the American Medical Association, is shown as he addressed the first meeting of the House of Delegates in the Imperial Ballroom of the Hotel Statler on August 4

Officers of the Fédération Dentaire Internationale attending the Tenth International Dental Congress, which met in conjunction with the eighty-eighth session of the American Dental Association, are (left to right): Ernst Haderup, Copenhagen, Denmark, vice-president; A. E. Rowlett, Leicester, England, president; Charles F. L. Nord, Amsterdam, Holland, secretary-general, and Eudore Dubeau, Montreal, Canada, one of the founders of the Fédération

Sterling V. Mead, retiring president of the American Dental Association, and A. E. Rowlett, president, Fédération Dentaire Internationale, as Dr. Rowlett acknowledged the golden key to the city, presented earlier at the Mayor's breakfast, at the opening of the Tenth International Dental Congress

H. B. Washburn, new president of the American Dental Association, addressing the House of Delegates in the Imperial Ballroom of the Hotel Statler during the eighty-eighth session of the American Dental Association

Members of the Council on Dental Education at their meeting at Boston are (left to right, standing): James R. Blayney, Chicago; T. N. Barlow, Bellingham, Wash.; Frank J. Houghton, Jersey City, N. J.; Roy O. Elam, Nashville, Tenn., and Shailer A. Peterson, director of educational measurements, Chicago. Seated are: William N. Hodgkin, Warrenton, Va.; Wilbert Jackson, Clinton, N. C.; J. Ben Robinson, chairman, Baltimore; Harlan H. Horner, secretary, Chicago, and Robert W. McNulty, Chicago. Absent, Bert L. Hooper, Lincoln, Neb.

Attending the breakfast sponsored by the Mayor of Boston for delegates of the American Dental Association were (left to right): Temporary Mayor John B. Hynes of Boston; Sterling V. Mead, retiring president of the American Dental Association; Governor Robert F. Bradford of Massachusetts; A. E. Rowlett, president of the Fédération Dentaire Internationale, and James H. Maycock, president of the Massachusetts State Dental Society

Members of the Council on Dental Health at their meeting, August 3, 1947, during the eighty-eighth session of the American Dental Association, are (left to right): Kenneth A. Easlick; Leo J. Schoeny; H. K. Willits; L. M. S. Miner; Allen O. Gruebbel; Hugo M. Kulstad; Lloyd H. Dodd; Leon R. Kramer; L. T. Hunt, and Walter A. Wilson

REPORT OF THE ACTIVITIES OF THE EIGHTY-EIGHTH SESSION OF THE AMERICAN DENTAL ASSOCIATION

More than 10,000 persons, from the United States and more than forty countries, attended the eighty-eighth session of the American Dental Association held in conjunction with the Tenth International Dental Congress, August 4-8, in Boston. The convention served also to sponsor the first postwar meeting of the *Fédération Dentaire Internationale* and a resumption of the quinquennial international congress after an interval of eleven years. The occasion marked a return to a regular full scale scientific session of the Association. In view of the difficulties that will arise in holding meetings of increasing scope, the House of Delegates approved a policy of selecting meeting sites three years in advance. A return to Chicago in September 1948 was voted, and tentative dates were set for a meeting in 1949 in San Francisco and in 1950 in Atlantic City. The dates of the two latter meetings will be determined later. The House of Delegates held two general sessions and devoted three regular meetings and one special meeting to the transaction of business.

ELECTION OF OFFICERS AND TRUSTEES

Clyde E. Minges, Rocky Mount, N. C., retiring trustee from the fifth district, was made president-elect in a contest with Fred J. Wolfe, Sr., New Orleans. Philip E. Adams, Boston, who served as chairman of the Committee on Local Arrangements for the convention, was elected first vice-president. Fred A. Richmond, Kansas City, Kan., and A. M. Smith, Jr., Tampa, Fla., were named second and third vice-presidents, respectively. R. H. Volland was re-elected treasurer. Harold Hillenbrand, general secretary, and Lon W. Morrey, editor of THE JOURNAL, remain in office two more years for their specified terms. At the end of the session, H. B. Washburn was inducted as president to succeed Sterling V. Mead. Dr. Mead was presented with the insignia of past presidents by Marcus L. Ward, Ann Arbor, Mich.

Five members were elected to the Board of Trustees to fill terms that expired in 1947. LeRoy M. Ennis, Philadelphia, was unanimous! re-elected trustee for the third district. Daniel F. Lynch, Washington, D. C., was elected trustee of the fourth district in a contest with George M. Anderson, Baltimore. Dr. Lynch succeeds Edward J. Jennings, Trenton, N. J. J. E. John, Roanoke, Va., in a contest with E. L. Thompson, Daytona Beach, Fla., was elected trustee of the fifth district. Dr. John succeeds Clyde E. Minges, who has served two full terms on the Board of Trustees and who was made president-elect at this meeting. Harold W. Oppice, Chicago, was re-elected trustee of the eighth district in a contest with Frank J. Hurlstone, also of Chicago. O. H. Moen, Watertown, Wis., in a contest with E. C. Wetzel, Milwaukee, was elected trustee of the ninth district, to succeed C. J. Wright, Lansing.

BOARD OF TRUSTEES MEETS

Because of the large amount of business that had to be transacted, the Board of Trustees was in session almost eighteen hours a day for four days prior to the opening of the meeting and throughout the entire session. One of the principal matters for consideration was the proposed budget for 1947-1948. The total anticipated expense for carrying on the activities of the Association for the coming year amounts to $1,076,578.46. The total anticipated income amounts to $764,000, leaving an anticipated deficit of $312,578.46. After interviewing the chairmen and secretaries of the various committees and commissions in an effort to balance the budget without seriously curtailing essential activities, the Board presented the proposed budget to the House of Delegates for consideration.

HOUSE OF DELEGATES GREETED AND HONORED

In his presidential address delivered during the first general meeting of the House of Delegates, Sterling V. Mead stressed the importance of dentistry for children. He recommended that all dentists be enrolled in a campaign to provide more dental health service to children and he urged the establishment of dental health programs in each community. He declared:

> Extension of good dental care to all children is the most important problem of the profession today. . . . In order to assure the fullest possible success of community dental programs for children, the local dental society should take every means possible to secure the counsel, advice and cooperation of other interested groups; for example, the Parent-Teacher Association, representatives of the local school system, civic organizations, service clubs and church clubs.

Other recommendations presented by President Mead are published in this issue of THE JOURNAL. They were acted upon favorably by the delegates during the third general meeting.

George F. Lull, secretary and general manager of the American Medical Association, presented greetings from his organization and spoke informally on its aims and accomplishments. He paid tribute to the physical arrangements for the House of Delegates which he stated were the best he had ever seen. He emphasized the need of closer cooperation between the medical and dental professions and reported that the house of delegates of the American Medical Association had appointed, unanimously, a liaison committee to work with a similar committee appointed by the American Dental Association. He expressed great concern over the efforts that have been made during recent years to establish a system of compulsory health insurance in this country. He urged that both the medical and dental professions develop an extensive program to educate the public as well as their own members to the dangers that lie in political control of health services. He estimated that not more than 10 or 15 per cent of the members of each association took an active part in organization affairs. As a result the majority of the professions are uninformed and little interested in socio-economic trends. "Both medicine and dentistry," he stated, "must be constantly on the alert to prevent the loss of private enterprise." In his concluding remarks Dr. Lull stated that the American Medical Association desires to cooperate with the American Dental Association, and he expressed the hope that the dentists of America would cooperate with the members of the medical profession.

After Dr. Lull's speech, Philip E. Adams, on behalf of the Committee on Local Arrangements and the members of the Massachusetts State Dental Society,

presented a historic gavel to President Mead as a token of their esteem. The handle of the gavel is made from a piece of the Paul Revere house. The head is composed of pieces from the Washington elm, Kings Chapel, Plymouth Rock, Faneuil Hall, Old Ironsides, the House of Seven Gables and the Old North Church.

Paul W. Zillmann, Buffalo, N. Y., chairman of the Committee on Membership, presented the three winners of the Junior Membership Essay Contest: Bert W. Gilbert, Indiana University; Herman J. Lyn, Chicago College of Dental Surgery, Loyola University, and Donald J. Passmore, University of Oregon. The subject of this year's contest was "Dental Health as a Community Problem."

Maj. Gen. A. B. Austin, director of the Army Dental Service, British Army, was introduced at the second meeting of the House of Delegates and conveyed to the members of the American Dental Association the greetings of the Royal College of Surgeons of England, the special greetings of the faculty of the Royal College of Surgeons to which he was elected a Fellow on July 31, as well as the fraternal greetings of the dental services of the British Dental Association and of the dental services of the Navy, the Army and the Air Force of Great Britain.

Harry B. Pinney, who retired last year after having served for nineteen years as general secretary of the American Dental Association, was called to the platform where he extended a few words of greetings to the delegates.

At the second general session of the House of Delegates held on Tuesday evening, August 5, Leo E. Allen of Illinois, chairman of the Committee on Rules of the House of Representatives, United States Congress, introduced the Honorable Joseph W. Martin, Jr., of Massachusetts, speaker of the House of Representatives. Congressman Martin commended the work of the members of the American Dental Association, saying:

> It is well that you and other large groups are devoted to constant research to discover new agencies and methods of healing. It is a vital contribution to a healthier and stronger America. The Congress gave encouragement to your efforts this year, and is prepared to go further if necessary. Only through devoted and persistent research can we keep abreast of the new physical and nervous disorders which, in our high-speed complicated civilization, have replaced the ancient ills of plagues, smallpox and yellow fever. You are among the important thought-molders and opinion-builders of your nation.

On Tuesday morning, August 5, the city of Boston gave a welcome breakfast to delegates. Temporary Mayor John B. Hynes presented keys of the city to Association officials, and Governor Robert F. Bradford of Massachusetts said that he hoped "there will be some program of complete and more adequate dental care for all children" and expressed a desire for the training of more dentists in what he called "a terribly undermanned profession."

On Wednesday evening approximately 1,000 persons attended the dinner and frolic held in honor of President and Mrs. Mead in the Imperial Ballroom of the Hotel Statler.

ACTIONS OF THE HOUSE OF DELEGATES

The House of Delegates voted to approve a budget of $1,076,578.46 submitted by the Board of Trustees. The anticipated income for the coming year is $764,000, leaving an estimated deficit of $312,578.46. As a deficit of this size will seriously affect the resources of the Association, the House of Delegates instructed the Board of Trustees to curtail all expenditures that will not seriously hamper the activities of the Association. In anticipation of continued rising costs and expanded activities, the House of Delegates approved a recommendation to

increase the annual dues to $12. In accordance with the constitution and bylaws, this proposal was not acted upon at this session. If sustained by the House of Delegates at the next annual meeting in 1948, it will be put into effect in January 1949.

Other actions of the House of Delegates consisted of increasing the dues of Pan American delegates to $10 annually. The House approved the formation of a council on dental journalism. Action on the new constitution and bylaws was postponed for one more year to allow further study. The delegates voted to change the name of "student" members to "undergraduate" members and to initiate an annual membership campaign to be inaugurated in October of each year. They also approved a recommendation that a study be made of methods of handling membership in the central office in order to facilitate the work of the secretaries of constituent and component societies. The House approved a recommendation that a special committee consisting of three members be appointed by the president to study procedures whereby the size of the House of Delegates can be reduced.

In considering the president's address the House approved of the recommendation that all state and component dental societies appoint committees on dentistry for children. The delegates also approved of the recommendation that active measures be taken for the training of dental technicians in dental schools and for the discouraging of such training in proprietary schools.

The House recommended the appointment of a committee to cooperate with a similar committee of the American Dental Hygienists' Association and approved the recommendation that state dental societies follow the national pattern in establishing liaison committees with dental assistants' societies. The House approved the recommendation that state dental societies support the action of the American Dental Association and of the American Medical Association by establishing committees at state and local levels for greater cooperation between the two professions. The delegates concurred in the recommendation that state dental societies be encouraged to create public information or public relations programs and committees.

The House of Delegates approved a recommendation that the Council on Dental Education ascertain whether there can be an improvement in the teaching of dental economics in dental schools and that the Council on Dental Education take steps to ensure more adequate training in the administration of various forms of general anesthetics in dental schools.

The president's recommendation that state and local dental societies be urged to appoint committees for assistance to the veterans was approved. These committees should be developed according to the pattern suggested by the Committee on Military Affairs, and such committees should encourage veterans to participate actively in the affairs of their local, state and national dental associations.

The House of Delegates approved of the recommendation that the American Dental Association take leadership in coordinating the various international dental groups devoted to international dental relations for the purpose of developing universal plans for better dental health of the world. The House also approved the president's recommendation that the House of Delegates state in unmistakable language its position with regard to free dental care for those who can afford to pay. The delegates approved a recommendation submitted by the Reference Committee on Public Health that no free dental care be given to any person able to pay at any level unless such care be for research authorized by the American Dental Association.

The House authorized the Committee on Dental Economics to make a study of dental activities engaged in by agencies of the federal government and

recommended that this committee undertake a statistical study of the distribution of dentists in the United States.

Upon the recommendation of the Committee on Legislation, the House approved federal legislation to establish the Dental Corps in each of the armed services on a basis of parity with the Medical Corps and other staff corps. In the event that Congress gives serious consideration to a bill for merger of the armed forces, the House directed the Committee on Legislation to introduce amendments or a bill for the unification of the Dental Corps of the Army, Navy and Air Force into a single unit with a separate autonomous department.

The House of Delegates passed the following resolution regarding Congressman Walter A. Brehm of Ohio:

Whereas Congressman Walter A. Brehm, an Ohio dentist, has been so diligent and effective in securing the passage of all legislation favored by this organization, particularly the dental officers' pay increase bill, be it resolved that this group go on record as appreciating his very valuable efforts and that a suitable missive of gratitude be forwarded to him.

The House voted to discontinue the Gorgas Memorial Committee and the Committee on Trade Relations and to transfer the clerical activities of the Relief Commission to the central office. The delegates approved the recommendation that relief grants from the American Dental Association be increased to twice as much as the amount of the state society grants as provided by the rules and regulations of the Relief Commission.

The House of Delegates approved the recommendation of the Council on Dental Therapeutics that the Council discontinue the policy of granting the Seal of Acceptance to those dentifrices which have not been shown to have value in the prevention or treatment of dental disease. The House approved the requirements for the accrediting of schools for dental hygienists as submitted by the Council on Dental Education. The House of Delegates also voted that it should be the general policy of the American Dental Association to favor the certification of specialists approved by examining boards.

APPOINTMENTS TO STANDING COMMITTEES

The House of Delegates confirmed the following nominations for membership on standing committees of the Association:

Committee on Amercian Red Cross: L. M. Shanley, Missouri, 1950; *Committee on Economics:* J. B. Zielinski, Illinois, 1952; Lee B. Dillon, Alabama, 1952, and W. C. Stillson, Ohio, 1952; *Committee on Insurance:* J. B. Flanagan, Pennsylvania, 1952; *Committee on Legislation:* John J. Kirby, Montana, 1951; Ira C. Brownlie, Colorado, 1951, and Sterling V. Mead, District of Columbia, 1951; *Committee on Constitution and Administrative Bylaws:* Percy T. Phillips, New York, 1950; *Council on Dental Health:* Kenneth A. Easlick, Michigan, 1950; Loren T. Hunt, Nebraska, 1950, and Leo J. Schoeny, Louisiana, 1950; *Council on Dental Therapeutics:* Edward C. Dobbs, Maryland, 1953; Victor C. Myers, Ohio, 1953, and Holmes T. Knighton, Missouri, 1950 (to fill vacancy); *Committee on Dental Museum and Registry:* H. L. Bunker, Kansas, 1951; Paul E. Boyle, Pennsylvania, 1951; Grant Van Huysen, Indiana, 1951; Henry M. Goldman, Massachusetts, 1948 (to fill vacancy); *Committee on History:* Eugene M. Clifford, Connecticut, 1952; *Committee on Patents and Honorary Awards:* M. D. K. Bremner, Illinois, 1952; *Committee on International Relations:* Fernando F. Sacassa, District of Columbia, 1952, and Stanley D. Tylman, Illinois, 1952; *Judicial Council:* J. J. Clarke, Sr., New Mexico, 1952.

Library and Indexing Service: Thomas

D. Speidel, Louisiana, 1951, and Alice McCann, Pennsylvania, 1951; *Council on Dental Education:* J. Roy Blayney, Illinois, 1950; *Committee on Military Affairs:* Collister M. Wheeler, Oregon, 1952; Robert T. Curran, Illinois, 1951; William S. Moyes, Utah, 1950; S. F. Reese, New Jersey, 1949, and Leo F. Marré, Missouri, 1948.

Committee on Membership: C. G. Green, Utah, 1952, and W. K. Waltmon, Texas, 1952; *National Board of Dental Examiners:* Hardy F. Pool, Iowa, 1952, and Robert J. Wells, Illinois, 1952; *Committee on Nomenclature:* Marcus L. Ward, Michigan, 1951, and George M. Anderson, Maryland, 1951; *Relief Commission:* L. H. Jacob, Illinois, 1953.

Research Commission: William J. Simon, Minnesota, 1952; Maynard K. Hine, Indiana, 1952; Paul C. Kitchin, Ohio, 1952; Lester R. Kahn, New York, 1952, and Arthur W. Lufkin, Southern California, 1952; *Committee on Scientific and Health Exhibits:* Leo W. Kremer, Illinois, 1952; *Committee on Motion Pictures:* A. P. Williams, Kentucky, 1952.

PRIZE WINNERS IN EXHIBIT SECTION

The sixty-five scientific and health exhibits displayed at the Boston meeting, although fewer in number than in former years, were of much higher quality and, as a result, they attracted an exceptionally large attendance.

Following a procedure established in 1937 the exhibits were divided into three classifications: basic science displays, clinical science displays and dental health education displays.

The United States Public Health Service won first prize in the basic science displays presented by organizations. The University of Illinois won second prize and the National Bureau of Standards won third prize.

Moses J. Eisenberg, Roxbury, Mass., won first place in basic science displays presented by individual exhibitors.

The American Oncologic Hospital placed first and the University of Minnesota second in the clinical science section for institutions.

In the clinical science section for individual exhibitors, first prize was awarded to Isadore and Leonard Hirschfield, New York; second to Adolph L. Biel, Pittsburgh, and third to Jesse V. Boswell, Springfield, Mo.

The exhibits of A. Budner Lewis, Providence, R. I., and Harold F. Curtis, Alexandria, Egypt, took first and second places, respectively, in the health and education section for individual exhibitors.

The United States War Department was awarded first prize, the Glen Lake Sanatorium second and the American Dental Hygienists' Association third in the health and education section for organizations.

REPORT OF THE ACTIVITIES OF THE TENTH INTERNATIONAL DENTAL CONGRESS

REPRESENTATIVES from forty-one nations attended the Tenth International Dental Congress held in Boston simultaneously with the eighty-eighth session of the American Dental Association. Officers of the American Dental Association were elected as officers of the Congress by the *Fédération Dentaire Internationale* in recognition of the part played by American dentists in re-establishing this world dental conference, which held its last regular session in 1936.

A. E. Rowlett, as president of the F.D.I., formally opened the Congress and inducted Sterling V. Mead as its president. Dr. Mead in his presidential address emphasized the need for and the responsibilities of an organization such as the F.D.I., saying:

> Dental caries and periodontal diseases are widespread and similar in all parts of the world. The great problems of dentistry today are primarily research, extension of dental health care and dental education. It is important to all nations that definite progress be established so that every child may get dental care and receive an examination at least once a year. This should be followed by definite programs of dental information or dental education. In order to give to the people the best type of dental service, it is our belief here in the United States that it should be a competitive form of dentistry, not regimented in the health services under medicine, nor regimented in any way. The profession should be administered only by dentists themselves who best know their problems. There should be no interference by bureaucrats or those who would hamper the extension of dental care. The dental profession can recognize only one standard of dental practice; namely, the highest. Dentistry today is world-wide in its scope. What affects one part of the world is very apt to affect others, especially in the administration of service and in the standards adopted. It is, therefore, most imperative at this time, more than at any time in the past, for all dentists to unite in an effort to establish the methods of the extension of dental care to more people.

Dr. Rowlett summarized the functions, plans and objectives of the *Fédération Dentaire Internationale* in his opening address. He stated:

> The *Fédération Dentaire Internationale* is a permanent association or universal union of national dental societies and those affiliated thereto. Its functions are to promote international dental congresses at regular intervals of five years, to maintain and strengthen the bonds of fellowship between national dental societies, to give encouragement in a general way to any activity that the organization of bodies may advance that may contribute to dental science, to award the "Miller Prize" and other international prizes and guerdons, to collect and keep professional documents and to organize regional documentary centers internationally.

Dr. Rowlett also spoke of the founding of the F.D.I. in 1900 in Paris at the time of the Third International Dental Congress, on the initiative of Charles Godon. Until then, international dental congresses had been held only on the occasion of great international exhibitions: at Paris in 1889, at St. Louis in 1893 and again at Paris in 1900. In outlining the growth of the F.D.I., Dr. Rowlett explained that the F.D.I. is divided into a bureau composed of the officers of the society and an executive council composed of the delegates from the various countries. In addition to the International Dental Congress held every five years, the members will maintain communication through an international dental journal and through a documentary

foundation already in existence in the George Eastman Dental Institute in Brussels.

Three of the awards given by the F.D.I were presented at this meeting. Juan U. Carrea, prominent orthodontist and dental scientist of Buenos Aires, Argentina, was the recipient of the Miller Prize, which is awarded every five years to the person or persons who have rendered the most eminent service to dentistry. The award also was made posthumously to William H. G. Logan, past president of the F.D.I. Mrs. D. L. La Chance, Chicago, daughter of the late Dr. Logan, attended the Congress for the presentation. The Miller Prize was founded in honor of the late Professor W. D. Miller of Berlin.

Allan G. Brodie, acting dean of the College of Dentistry, University of Illinois, was honored for his work in orthodontics by being named to receive the first award of the Georges Villain Prize. The prize, created in memory of Georges Villain, former president of the F.D.I., who died in 1939, is awarded every five years for outstanding contributions in orthodontics or prosthodontics. Henri Villain of Paris, brother of the late president of the F.D.I., made the presentation to Dr. Brodie.

Delegates and visitors to the Congress attended the scientific sessions and clinics of the American Dental Association throughout the conference week. Dr. Rowlett sponsored the F.D.I. presidential dinner, and a number of luncheons and receptions were held in the course of the week's meeting.

At the close of the Congress, the following members were elected officers of the Bureau of the F.D.I. for the period of 1947-1952: honorary president, A. E. Rowlett, Great Britain; honorary vice-presidents, E. Dubeau, Canada; W. Guy, Great Britain; A. L. J. C. van Hasselt, Holland; president, Charles F. L. Nord, Holland; vice-presidents, H. Trendley Dean, United States; Daniel F. Lynch, United States; Oren A. Oliver, United States; Henri Villain, France; J. U. Carrea, Argentina; E. Haderup, Denmark; A. Joachim, Belgium; secretary general, F. Watry, Belgium; assistant secretaries, G. H. Leatherman, Great Britain; J. E. De Wever, Belgium; treasurer, P. Fontanel, France; assistant treasurers, M. Deliberos, France; A. Held, Switzerland.

PROMOTION AND PAY BILLS PASSED BY CONGRESS

The Promotion Bill, H.R. 3830, and the Procurement Bill, H.R. 3851, also known as the Pay Bill, were passed during the closing days of the first session of the Eightieth Congress. Both bills as introduced into Congress would have discriminated against the Dental Corps in the Army and in the Navy. Representative Walter E. Brehm of Ohio, a dentist, and Representative L. Mendel Rivers of South Carolina were influential in securing passage of these bills. Representative Roy O. Woodruff of Michigan, another dentist in Congress, also supported these bills. A digest of both bills was published in the August 1, 1947, issue of THE JOURNAL, pages 214 to 216.

Witnesses, representing the American Dental Association, appeared at all of the Congressional hearings and protested against certain provisions in the bills. The Committee on Legislation requested the Armed Services Committee to amend the bills to give the dental officers in the Army and Navy a pay increase and an opportunity for promotion equal to that given to any other officers in the Staff Corps. A similar pay increase was requested for the dental officers in the U.S. Public Health Service. Both bills were amended in committee to give dental officers equal treatment with the other Staff Corps officers and were passed as amended in both houses. The bills have been signed by the President.

SENATE PASSES DENTAL RESEARCH BILL, S.176

The Dental Research Bill, S.176, which was introduced into the Senate by Robert A. Taft of Ohio, George D. Aiken of Vermont, Wayne L. Morse of Oregon, James E. Murray of Montana and Claude Pepper of Florida, was passed by the Senate on July 24. Although the bill was introduced on a bipartisan basis, Senator Taft and Senator H. Alexander Smith of New Jersey were largely responsible for securing its passage. They were assisted by Senator Kenneth S. Wherry of Nebraska and Senator Murray, as well as by other members of both parties. The bill now goes to the House for consideration during its next session.

The research provided for in the bill would be conducted under the direction of the Surgeon General of the U. S. Public Health Service at the National Institute for Dental Research, to be created as part of the National Institute of Health, Bethesda, Md.

The bill also would create the National Dental Research Advisory Council, to consist of six members appointed by the Surgeon General with the approval of the Federal Security Administrator. The members would be selected from among leading dental, medical and scientific authorities.

HEARINGS ON S.545 TO BE RESUMED WHEN CONGRESS RECONVENES

Hearings on the Taft health bill, S.545, held during the first session of the Eightieth Congress, were not completed when the session ended and will be resumed when Congress reconvenes next January.

This bill would coordinate the health functions of the federal government into a single agency; would provide grants-in-aid to the states for free health examinations, including physical and dental examinations, for all children in the elementary and secondary schools, and would assist the states in providing hospital, medical and dental services to those children, individuals and families having insufficient income to pay the

whole cost of such services. The bill also would include a provision for dental research to be conducted in a manner substantially similar to that provided for in S.176.

SENATE DEFERS ACTION ON BILLS S.1320, S.140 and S.172

A new compulsory health insurance bill, S.1320, was introduced into the Eightieth Congress by Senators James E. Murray of Montana, Robert F. Wagner of New York, Claude Pepper of Florida, Dennis Chavez of New Mexico, Glen H. Taylor of Idaho and J. Howard McGrath of Rhode Island. It was referred to the Senate Committee on Labor and Public Welfare. Hearings on S.1320 were held concurrently with some of the hearings on S.545.

The new compulsory health insurance bill is substantially similar to the previous ones. The principal change is the provision for partial administration by the states or local communities subject to supervisory control in the Federal Security Agency. The hearings on S. 1320 will be resumed at the start of the next session.

Hearings were held by a Senate committee on S.140 and S.172, which would create a new department in the federal government to be called the "Department of Health, Education and Security," but no action was taken by the Senate. These bills probably will be considered again in the next session of Congress.

APPROPRIATIONS ACT PROVIDES FOR ADDED HEALTH FACILITIES

Construction of $225,000,000 worth of hospital and health facilities during the fiscal year of 1948, ending June 30 next year, will be possible under the appropriations act signed by the President on July 8, Thomas Parran, Surgeon General, U.S. Public Health Service, Federal Security Agency, has announced.

Although no federal funds were directly appropriated for this purpose, the act, as Dr. Parran explained, sets up a procedure patterned after the program of federal aid for highway construction. Under this procedure the federal government is obligated to pay up to $75,000,000 as its share of approved hospital construction. Since the federal government pays one third of the cost, the potential combined total of federal, state and local funds is $225,000,000. Under this arrangement, states need not delay their plans for hospital construction since they have the assurance that any construction project approved by the Surgeon General creates a contractual obligation on the part of the federal government to meet one third of the cost.

ARMY ENGINEERS PLAN HUGE RESEARCH AND TEACHING CENTER

What is planned to be the greatest medical research center in the world will be built at Forest Glen, Md., by the Corps of Engineers for the Office of the Surgeon General.

The center will be equipped in keeping with technical advances in all fields. The initial cost is estimated at approximately $40,000,000.

Officially designated as the "Army Medical Research and Graduate Teaching Center," the project will consist of a 1,000 bed general hospital, capable of expansion to 1,500 beds; the Army Institute of Pathology building; the Army Medical Museum and Center Administration building; Central Laboratory Group buildings, and the Army Institute of Medicine and Surgery.

The Institute of Medicine and Surgery building will house research dentistry, research medicine, veterinary medicine, research surgery, x-ray and radiation and preventive medicine.

COUNCIL ON DENTAL THERAPEUTICS

BARBITURATES: VALUABLE THERAPEUTIC AGENT AND PUBLIC HEALTH PROBLEM

THE introduction of barbital by Emil Fischer and von Mering[1] in 1903 heralded the beginning of a marvelous age in chemotherapeutic development. The two hydrogen atoms in the methylene group of diethylmalonylurea (barbituric acid) indicated in Figure 1, left, are very reactive and can be replaced indirectly by one or two aliphatic or aromatic groups to form compounds having hypnotic properties. This has led to the preparation of more than 1,800 different barbituric acid derivatives, of which twenty have been generally accepted for clinical use.

Starting with thiourea (Fig. 1, right), in place of urea, a new series of barbiturates has been prepared, the best known being thiopental sodium. Table 1[2] lists the clinically useful barbiturates that are recognized in the United States Pharmacopoeia XIII, New and Nonofficial Remedies 1946, and Accepted Dental Remedies 1946. The trade names, synonyms, and chemical names, the approximate relative duration of action and the average adult hypnotic dose

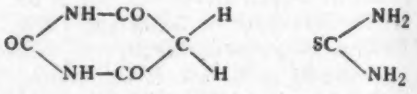


Fig. 1.—Left: Diethylmalonylurea. Right: Thiourea

are given. Barbital was the first of the malonylurea series of drugs to become official in the U.S.P. and is still regarded as one of the best hypnotics. For years the drug manufacturers introduced barbiturates under confusing trade names, each claiming superior virtues for his product with respect to potency, efficiency or shortness of action, margin of safety and form, size or color of tablet or capsule. Gardner[3] considers only five barbiturates as essential: Barbital and phenobarbital and their sodium derivatives; pentobarbital sodium; hexobarbital sodium for intravenous anesthesia; and thiopental sodium, for prolonged intravenous anesthesia. Hexobarbital sodium (evipal sodium) is listed in New and Nonofficial Remedies, and the other four are recognized in the U.S.P. XIII. The first three are listed in Accepted Dental Remedies. Thiopental is omitted from Accepted Dental Remedies in keeping with the statement of the Council on Dental Therapeutics that "the intra-

This paper has been authorized for publication by the Council on Dental Therapeutics. The opinions expressed are those of the author and do not necessarily reflect the opinion of the Council.

1. Fischer, E., and von Mering: Ueber eine neue Klasse von Schlafmittein. *Therap. d. Gegenw.* 44:97, 1903.

2. Goldstein, S. F., Barbiturates: A Blessing and a Menace. *J. Am. Pharm. A.* 26:5 (January) 1947.

3. Gardner, H. B., Use and Abuse of Barbiturates. *Penn. Med. J.* 47:451 (February) 1944.

Table I.—Barbiturates accepted for clinical use

Trade names, synonyms, and chemical names	Recognized in	Duration of action (approx.)[1]	Average adult hypnotic dose in gram
Alurate[2] Allylisopropylbarbituric acid	N.N.R.	M	0.065-0.13
Amytal[2] Isoamylethylbarbituric acid	N.N.R.	M	0.1-0.3
Barbital[2,3], Barbitone, Veronal Diethylbarbituric acid	U.S.P., A.D.R., N.N.R.	P	0.3
Dial Diallylbarbituric acid	N.N.R.	P	0.1-0.3
Hexobarbital Soluble, Evipal Sodium, Evipal Soluble Sodium N-methylcyclohexenylmethylbarbiturate	N.N.R.	S	0.26-0.39
Ipral Calcium,[2] Probarbital Calcium Calcium ethylisopropylbarbiturate	N.N.R.	P	0.12-0.25
Neonal, Soneryl, Butobarbital n-Butylethylbarbituric acid	N.N.R., A.D.R.	P	0.05-0.1
Nostal Isopropyl-β-bromallylbarbituric acid	N.N.R.	P	0.1-0.3
Ortal Sodium Sodium n-hexylethylbarbiturate	N.N.R., A.D.R.	M	0.2-0.4
Pentobarbital Sodium Sodium ethyl (l-methylbutyl) barbiturate	U.S.P., A.D.R., N.N.R.	M	0.1
Pernoston[2] secondary Butyl-β-bromallylbarbituric acid	N.N.R.	M	0.2
Phanodorn, cyclobarbital Cyclohexenylethylbarbituric acid	N.N.R.	M	0.1-0.2
Phenobarbital, phenobarbitone, Luminal Phenylethylbarbituric acid	U.S.P., A.D.R., N.N.R.	P	0.03-0.1
Sandoptal Isobutylallylbarbituric acid	N.N.R.	M	0.2-0.4
Seconal Sodium Sodium allyl (l-methylbutyl) barbiturate	N.N.R.	S	0.1-0.2
Thiopental Sodium, pentothal Sodium Sodium ethyl (l-methylbutyl) thiobarbiturate	U.S.P., N.N.R.	VS	.....
Vinbarbital Sodium, delvinal Sodium Sodium ethyl (l-methyl-l-butenyl) barbiturate	N.N.R.	M	0.1-0.2

1. Duration of action: M, moderate; P, prolonged; S, short; VS, very short (intravenous).
2. Sodium salt also in N.N.R. or U.S.P.
3. Barbital Sodium also known as Medinal.

venous injection of prompt acting and soluble barbiturates for basal anesthesia is fraught with many dangers and should not be employed in the ordinary office practice."[4]

The medicinal use of the barbiturates is chiefly for the depression of the central nervous system. The hypnotic effect can vary from a light sleep to a deep coma, depending upon the size of the dose and the patient's reaction. The proper oral dose should induce sleep in twenty to sixty minutes. The barbiturates are used to arrest convulsions as in strychnine poisoning, tetanus, and epilepsy. Phenobarbital is the drug of choice for epileptics because of its selective action upon the motor cortex. Barbiturates are useful in psychic sedation, producing a sound sleep the night before a surgical operation, and allaying fears before the operation. In dentistry barbiturates are used preoperatively alone or together with an analgesic. They are also used

4. *Accepted Dental Remedies.* Chicago: American Dental Association, Ed. 12, p. 24, 1946.

postoperatively, more often in small doses as sedatives, or, when necessary, as hypnotics. Medication with barbiturates prior to local anesthesia prevents the excitatory symptoms of acute poisoning due to cocaine, procaine and butecaine sulfate, among other substances.[5] The average dose used to produce sleep does not depress the respiration, but large doses can cause death by respiratory failure. Overdoses of barbiturates can indirectly diminish the secretion of urine, and since urine is the most important avenue for the excretion of these drugs, especially the more stable compounds, the patient's recovery is delayed. Thiobarbiturates and barbiturates with complex cyclic radicals, for example, hexobarbital, are less stable and almost completely destroyed in the liver. McNally[6] states that individuals with impaired hepatic function have remained deeply anesthetized for long periods of time from a hypnotic dose of hexobarbital, which in a normal person would have caused an anesthesia for only fifteen minutes. He also states that the longer acting barbiturates should not be given to patients with kidney dysfunction, because failure of the kidneys to excrete the barbiturate causes a cumulative toxicity which is noted in cases where this type of drug is used daily. Even in a normal person a hypnotic dose of a stable barbiturate is detectable in the urine nine days after ingestion of the drug.

McNally[6] warns against the misuse of barbiturates in obstetrics. Gardner[3] recognizes the value of phenobarbital in small doses as a simple sedative, but believes that the barbiturates as a group should be considered as hypnotics, and used as such. He fears that many physicians have forgotten that the bromides and small doses of chloral hydrate and chlorobutanol may be used more efficiently as simple sedatives.

The barbiturates can be a blessing to individuals undergoing the mental tortures of sleepless nights due to various causes. The layman who experiences this relief and who has not been warned sufficiently about the possible dangers of intoxication by these drugs naturally will desire to continue using them. The first-time users should be instructed by their physicians and dentists of the proper use of the barbiturates. The patient's ability to obtain the drug should be curtailed by prescribing small quantities and requiring written directions for refilling the prescription when needed. When no specific directions are given these prescriptions should not be refilled.

A vigorous campaign should be initiated by the American Medical Association and the American Dental Association to educate the physician and dentist to their responsibilities in the field of medication before conditions require drastic legislative steps.

Hambourger,[7] in 1940, reported that addiction to the use of barbiturates accounted for more than 10 per cent of all cases of addiction, excluding chronic alcoholism, as reported by thirteen hospitals. Two thirds of the barbiturate habitués who gave information claimed that they became familiar with the drug through a physician. Nearly a third of the habitués for whom the information was recorded developed craving when the barbiturate was withheld. None showed any serious symptoms from withdrawal. It is apparent that habituation to barbiturates presents a problem but its seriousness cannot be compared to that caused by narcotics. This is emphasized further by my recent report on habit-formation due to barbiturates and narcotics.[8] Even now, after many years of

5. Knoefel, P. K., Herwick, R. P., and Loevenhart, A. S., The Prevention of Acute Intoxication From Local Anesthetics. *J. Pharmacol. & Exper. Therap.* 39:397 (August) 1930.

6. McNally, W. D., Use and Abuse of Barbiturates. *J. Mich. State Med. Soc.* 41:635 (August) 1942.

7. Hambourger, W. E., The Promiscuous Use of the Barbiturates. *J.A.M.A.* 114:2015 (May 18) 1940.

8. Goldstein, S. W., Barbiturates: Are They Narcotics? *J. Am. Pharm. A.* 36:97 (April) 1947.

heroic work by federal agents, the cases of narcotic addiction are far greater than those of barbiturate dependence. The possibility of barbiturate addiction was considered serious enough by the Food and Drug Administration to lead to the ruling which states that the words "may be habit-forming" must appear on all proprietary preparations containing a barbiturate. The hazard of habituation due to barbiturates prescribed by dentists is slight. When barbiturates are necessary in postoperative treatment, generally the dentist will give one dose of a barbiturate to a patient or, if more than one dose is indicated, will prescribe only a small number of doses. One might easily imagine that the danger of some overworked dentists becoming too dependent upon these drugs is a greater hazard.

At first barbiturates were thought to be so free from harmful effects that they were prescribed readily in all conditions where drug-induced relaxation or sleep was thought to be desirable. Indeed it is fortunate that with most persons there is a wide margin between the therapeutic dose and the toxic dose for the barbiturates usually prescribed for oral administration.

The dentist must take into consideration also the possible effect on the ambulatory patient. Most dentists appreciate the possible ill effects due to excessive dosage with barbiturates and use them cautiously. One dentist told me that he has been extremely cautious since a patient, to whom he had administered one and a half grains of pentobarbital sodium, drove off and wrecked his car. Ten to fifteen times the amount of the therapeutic dose has generally proved fatal, although recoveries from massive doses (barbital, 10 to 30 gm.; phenobarbital, 8 to 9 gm.) have been reported.[7] Nonfatal poisonings from as little as 0.3 gm. of barbital and 0.2 gm. of phenobarbital have also been reported. Wide variations in relation to fatal and nonfatal doses also have been noted in hospital records studied by the author. Chronic poisoning is encountered where elimination is slow and cumulative, toxic aftereffects are manifested in mental and bodily weakness, tremors and dizziness.

The increase in deaths caused by barbiturates is evident in the latest figures for the individual states. The available figures from 1936 to 1945, inclusive, are given in Table 2.[2] A majority of the states, especially those with large rural populations, show little change in the yearly numbers of deaths caused by barbiturates from 1936 through 1944. Most of the states with large urban populations show increasing numbers of deaths during this period. The available figures for 1945 show tremendous increases in the number of deaths in eight of the fourteen states represented, and only one state shows a definite decrease. The emotion-stirring years of 1939 to 1941 show the expected high figures, but the deaths in 1945 indicate new all-time highs in many states. The increasing number of deaths caused by barbiturates appears to be about the same for states with and without legal controls for the distribution of barbiturates. It is evident that the control measures in effect today are not succeeding in halting the upward trend in deaths caused by barbiturates.

The only reliable source of data on nonfatal poisonings is the hospital record or case history. Data obtained from hospitals by Hambourger[7] for the period 1928 to 1937, inclusive, and by myself for the period 1940 to 1945, inclusive, are recorded in Table 3.[2] In the present study more emphasis was placed on obtaining data from enough hospitals in one city (Baltimore) to make certain that patients from all social and economic levels would be included. The data indicate that the barbiturate danger is prevalent among all classes of the population.

Where data are available from both the 1928 to 1937 and 1940 to 1945 periods, it will be noted that the per-

centage ratio of barbiturate poisonings to total admissions has almost doubled, and the percentage ratio of barbiturate poisonings to all drug poisoning cases has increased tremendously. The data from Michael Reese Hospital and Walter Reed

Table 2.—Deaths caused by barbiturates: suicidal and accidental[1]

State	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945
Alabama[2]	3	10	4	4	3	2	2	..	4	...
Arizona	..	2	6	4	4	3	3	1	3	...
Arkansas[2]	2	1	1	1	2	3	2	2	1	...
California[2]	21	31	29	32	56	63	52	93	108	193
Colorado[2]	..	3	2	4	2	7	8	2	4	...
Connecticut[2]	6	9	9	10	9	8	8	6	10	...
Delaware[2]	1	..	..	..	..	..	..	..	..	...
District of Columbia[2]	4	5	8	8	5	2	2	..	5	...
Florida[2]	8	10	13	10	12	14	5	8	10	...
Georgia[2]	5	8	3	3	3	6	..	4	2	9
Idaho	2	4	2	1	3	1	1	..	1	...
Illinois	33	63	56	51	70	70	24	31	33	60
Indiana[2]	11	18	12	16	27	17	12	9	14	...
Iowa	4	9	15	9	8	14	5	5	8	9
Kansas[2]	3	4	3	9	11	3	3	3	1	9
Kentucky	1	4	6	5	3	4	4	2	3	6
Louisiana[2]	4	1	4	9	2	4	5	1	2	...
Maine[2]	4	3	1	4	3	5	4	..	3	...
Maryland[2]	4	1	1	1	5	3	5	7	7	9
Massachusetts	22	20	20	22	24	35	26	28	22	42
Michigan[2]	11	14	16	26	28	31	13	14	11	...
Minnesota[2]	8	14	11	9	9	12	12	13	14	11
Mississippi[2]	..	3	..	..	9	12	14	6	3	4
Missouri[2]	6	13	16	12	32	7	4	10	11	...
Montana[2]	2	..	..	1	2	1	1	1	4	...
Nebraska[2]	..	2	1	4	6	3	3	2	1	...
Nevada[2]	3	..	1	2	1	..	1	1	..	...
New Hampshire[2]	1	1	4	2	1	9	3	1	..	...
New Jersey[2]	7	4	7	7	17	13	9	12	11	...
New Mexico	1	3	1	2	3	4	..	3	2	...
New York[2]	57	49	62	58	60	65	73	87	98	...
North Carolina[2]	4	2	1	1	5	2	4	4	4	...
North Dakota[2]	1	..	..	..	3	1	2	..	..	...
Ohio	28	21	45	32	55	71	42	38	38	72
Oklahoma[2]	5	6	6	3	1	2	3	4	5	...
Oregon[2]	5	6	5	4	2	6	5	1	4	10
Pennsylvania[2]	12	15	10	15	18	20	18	21	18	...
Rhode Island[2]	1	1	2	1	1	1	1	1	2	...
South Carolina[2]	3	3	3	3	1	2	..	..	3	...
South Dakota	..	..	1	..	..	..	1	1	..	...
Tennessee[2]	4	5	2	4	2	2	3	1	5	...
Texas	7	6	5	8	12	16	7	13	11	...
Utah[2]	2	6	5	3	1	1	1	..	3	...
Vermont[2]	..	1	2	..	3	1	3	..	1	...
Virginia[2]	1	..	..	2	2	3	1	4	7	4
Washington[2]	16	17	10	5	8	9	7	12	11	15
West Virginia[2]	5	3	5	1	5	7	9	4	7	...
Wisconsin	7	12	19	14	15	17	13	9	6	...
Wyoming	..	1	..	..	..	2	..	..	1	...

1. From U. S. Public Health Service, National Office of Vital Statistics, and State Statistics.
2. States had enacted laws, as of October 1, 1945, regulating the sale of barbiturates.
3. States were exercising control of sale of barbiturates by regulation as of October 1, 1945.

General Hospital do not follow the trend with respect to the percentage ratio of barbiturate poisonings to total admissions, but the percentage ratio of barbiturate poisonings to all drug poisonings remained the same in the first hospital and the figure of 42.9 per cent for the second hospital shows that almost half its poisoning cases were caused by barbiturates. The data from Johns Hopkins Hospital show that the percentage ratio of barbiturate poisonings to total poisoning for the 1940-1945 period is lower than for the 1936-1937 period. A yearly breakdown shows that this ratio increased each year from a low of 0.5 per cent in 1940 to a high of 21.2 per cent in 1945.

Applying the percentage ratios of barbiturate poisonings to total admissions obtained for the 1940-1945 period (excluding Boston City Hospital) to the same number of admissions for each corresponding hospital as reported in the earlier survey, we obtain the following

Table 3.—Acute poisoning by barbiturates

Hospital	1928–1937, Inclusive					1940–1945, Inclusive				
	Hospital admissions, all causes (A)	Poisoning cases except CO and Alc. (P)	Barbiturate poisoning (B)	Percentage of all poisoning cases, $\frac{B}{P}$ 100	Percentage of all admissions, $\frac{B}{A}$ 100	Hospital admissions, all causes (A)	Poisoning cases except CO and Alc. (P)	Barbiturate poisoning (B)	Percentage of all poisoning cases, $\frac{B}{P}$ 100	Percentage of all admissions, $\frac{B}{A}$ 100
Boston City	331,481	2214	391	17.7	0.118	163,469[1]	950	271	28.5	0.166
Peter Bent Brigham, Boston	43,885	214	26	12.1	0.059	.....	.....	.....	.....	.....
Cleveland City	129,983	.....	60	.....	0.046	74,709	311	92	29.6	0.123
University Clinics, Chicago	63,076[2]	117	18	15.4	0.028	40,339	55	15	27.3	0.037
University Hospitals, Cleveland	91,703	245	23	9.4	0.025	.....	.....	.....	.....	.....
St. Mary's, St. Louis	75,024	99	18	18.2	0.024	52,516	110	18	16.4	0.034
Michael Reese, Chicago	142,067	169	34	20.1	0.024	102,026	40	8	20.0	0.008
Presbyterian, New York	135,352	444	22	5.0	0.016	139,499	193	45	23.3	0.032
Johns Hopkins, Baltimore	32,703[3]	27	5	18.5	0.015	118,407	824	27	3.3	0.023
Baylor University, Dallas, Texas	109,138	293	15	5.1	0.014	111,533	103	50	48.5	0.045
Baltimore City	25,356[4]	114	3	2.6	0.012	37,191	235	19	8.1	0.051
Walter Reed General, Washington, D. C.	74,067	.....	7	.....	0.009	35,755[5]	7	3	42.9	0.008
Union Memorial, Baltimore	.....	.....	.....	.....	.....	32,665[1]	90	29	32.2	0.089
University Hospital, Baltimore	.....	.....	.....	.....	.....	69,287	123	22	17.9	0.032
Sinai, Baltimore	.....	.....	.....	.....	.....	39,331	110	12	10.9	0.031
Mercy Hospital	.....	.....	.....	.....	.....	43,548[6]	77	8	10.3	0.018

1. 1940-1943, inclusive.
2. 1927-1938, inclusive.
3. 1936-1937, only.
4. 1935-1937, inclusive.
5. 1943-1944 only.

figures: total admissions, 786,766; barbiturate poisonings for earlier period, 182; barbiturate poisonings for later period, 339. This gives a composite percentage ratio of 0.023 for the 1928-1937 period as compared with a composite percentage ratio of 0.043 for the 1940-1945 period, or an increase of more than 86 per cent in the number of barbituate poisoning cases. In the case of Boston City Hospital for which we have data through 1943 only, the percentage ratio of 0.118 for the 1928-1937 period compared with that of 0.166 for the 1940-1943 period shows a 41 per cent increase in the frequency of occurrence of barbiturate poisoning cases.

Applying the percentage ratios of barbiturate poisonings to all drug poisoning cases (except alcohol and carbon monoxide) obtained for the 1940-1945 period (excluding Boston City Hospital) to the same number of total drug poisoning cases for each corresponding hospital as reported in the earlier survey, we obtain the following figures: total drug poisoning cases, 1,263; barbiturate poisonings for earlier period, 115, and barbiturate poisonings for later period, 337. This gives a composite percentage ratio of 9.1 for the 1928-1937 period as compared with 26.7 for the 1940-1945 period, or an increase of more than 193 per cent in the frequency of barbiturate poisonings compared to all drug poisonings. Boston City Hospital shows a percentage ratio of 17.7 for the 1928-1937 period compared with that of 28.5 for the 1940-1943 period, or a 61 per cent increase in the frequency of occurrence of barbiturate poisoning cases.

The hospital data for the 1928-1937 period show that in ten hospitals, with total admissions of 1,049,785, barbiturates were responsible for one seventh of the acute poisonings due to all drugs except alcohol and carbon monoxide. The present survey shows that in fourteen hospitals, with total admissions of 1,060,275, barbiturates were responsible for one fifth of the acute poisonings due to all drugs except alcohol and carbon monoxide.

The conditions existing in the period up to 1937 were responsible for the introduction of a resolution at the June 1937 meeting of the American Medical Association on the "Evils From Promiscuous Use of Barbituric Acid and Derivative Drugs."[9] The resolution included the following statement: "The evils of these drugs include habit formations, toxic cumulative action, their substitution for alcoholic beverages for drunken episodes, their use for successful as well as unsuccessful suicidal attempts, their improper use being a recognized causative factor in many motor accidents and their improper use being a recognized etiologic factor in some criminal assaults. . . ." If the conditions responsible for the position taken by the American Medical Association in 1937 are reflected in the hospital survey made by Hambourger[7] at the invitation of the Council on Pharmacy and Chemistry of the American Medical Association, then certainly a much more alarming condition is indicated by the present study.

Data obtained from the publications of the United States Department of Commerce, Bureau of the Census, indicate that although the trend for the United States is lower in suicides and fatal poisonings by all solid and liquid poisons, suicides and fatal poisonings by barbiturates are increasing. This is shown in Figures 2 and 3.[2]

These data emphasize the increase in the number of barbiturate poisonings. About the middle of 1945 the Chief Medical Examiner of New York City reported an increase in the number of deaths in the city from consumption of sleeping tablets from a normal (?) of 40 per year to 47 in the last three months. Early in 1946 the New York City hospitals were reporting a death caused by barbiturates every thirty-six hours. Is

9. Proceedings of the Atlantic City Session of the American Medical Association. *J.A.M.A.* 108:2213 (June 26) 1937.

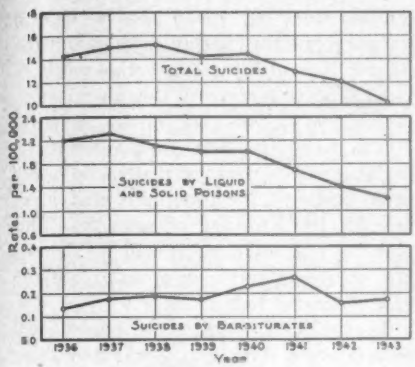


Fig. 2.—Suicides in United States (Bureau of Census data)

there any wonder that New York City already has enacted more stringent legislation for the control of these drugs? The use of barbiturates in the United States has increased at such a rate that whereas in 1936, 230,000 pounds were produced, in 1945 the production of barbiturates was 550,000 pounds.

Many lay "pharmacologists" have discovered that if they take barbiturates with alcohol they can obtain effects ranging from what might be called a cheap drunk to a heroin reaction. In the New York Harlem section the effect is called "Wild Geronimo." These people refer to the barbiturates as goof pills, yellow jackets, red dogs or red birds, depending on the color of the capsules, and the combination with beer or liquor is called "a bolt and a jolt."

The use of barbiturates by criminals is considered to be of secondary concern since these people make up a small fraction of the population. Of greater concern are the thousands of people who regard these compounds as harmless and gradually use them to excess. What is becoming the classic example was discovered not long ago in Waco, Texas. A kindergarten teacher noticed the unusual behavior of a pair of twins. She found that one of them had a box of pills which the child said her father had given to her. Investigation showed that the father, a factory worker, had been put on the night shift. Unable to adjust himself to the new hours, he became habituated to sleeping pills. He was still disturbed by the noise of the twins playing, so he started giving them pills, too. The children were taking them regularly. This story will be retold many times before adequate control of barbiturates is finally established.

Many accidental cases of barbiturate intoxication are discovered and treated before death takes its toll. Amphetamine (benzedrine) and picrotoxin have been used successfully in the treatment of acute intoxication. Frequently these individuals tell of having taken the usual dose of the drug which did not bring sleep. Then in the mentally befuddled state induced by the barbiturate, they took more of the drug. How much more they did not know. Barbiturates have now achieved the questionable honor of being chosen as the chemical instrument of suicide, second only to carbon monoxide.

Where can people get more barbiturates than they should have? From physicians and dentists, from pharmacists (with a prescription and in some instances without a prescription), from

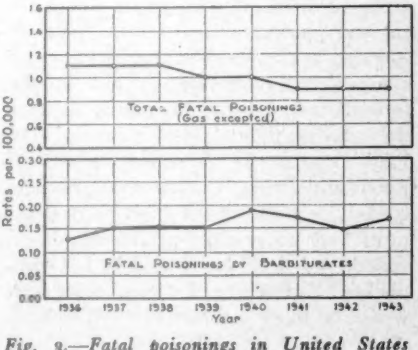

TOTAL FATAL POISONINGS (Gas excepted)
FATAL POISONINGS BY BARBITURATES
Rates per 100,000
1936 1937 1938 1939 1940 1941 1942 1943
Year

Fig. 3.—Fatal poisonings in United States (Bureau of Census data)

some nurses, from wholesale drug houses, from jobbers and from individuals who "know the ropes." The physicians and dentists share the responsibility of carefully considering the properties of the barbiturates they prescribe. They are also in the most advantageous position to impress upon their patients the necessity of authoritative supervision in their administration. Prominent newspaper ballyhoo, every time a famous or notorious person succumbs to sleeping pills, should not dramatize the ease with which the victim passed away.

I believe that if all habitual use of barbiturates that are obtained from physicians, dentists and pharmacists could be eliminated, the tragic picture presented today would be only very slightly bettered. The hazard with regard to proper dental usage of barbiturates is negligible, and dentists should not hesitate to use these valuable therapeutic agents when necessary. Without the knowledge or intent of most manufacturers, wholesalers, dealers and jobbers, most of the barbiturates that are illegitimately and harmfully used get into the hands of the users through nonprofessional channels.

There can be no doubt that uncontrolled traffic in barbiturates is a growing menace to the public health. Responsible authorities have pointed with alarm and have called for rigid controls of this group of drugs. The leaders of the medical and pharmaceutical groups have responded as they have in the past and are conscientiously striving to aid in the formulation of legal safeguards to keep the growing monster under control. Dr. Paul Dunbar, U. S. Commissioner of Foods and Drugs, "in discussing Federal control over the distribution of barbiturates and other sleep-producing drugs, stated, 'A federal law would be too complicated and drastic. Uniform state laws would be more satisfactory'."[10] Dunbar's opinion does not mean that a federal statute regulating barbiturates cannot be passed. Not all federal and state enforcement officers agree with this assumption. A bill was introduced in the Seventy-Ninth Congress that would designate barbiturates as narcotic drugs and place them under all the provisions now effective for the handling of narcotics. This was the first attempt. It will not be the last. A recent publication sets forth the case against a federal law.[8]

If physicians, dentists and pharmacists would avoid federal control, they must get together on uniform state legislation and do it quickly. There has been much activity in various state legislatures towards enacting uniform state laws regulating the distribution of barbiturates. The law as passed by the Maryland Legislature affects the dentist as follows:

1. The dentist must keep complete records showing: (a) all stocks of barbiturates on hand on the effective date of the Act, (b) all receipts of barbiturates by the dentist, his agents and employees and (c) the name and quantity of each barbiturate dispensed or administered by him, the date it was dispensed or administered by him, and the name and address of the patient.

2. The dentist's prescription for a barbiturate must specify the date of its issue, the name and address of the dentist, the name and address of the patient, the name and quantity of the barbiturate prescribed, the directions for the use of such a drug and the dentist's signature.

3. No prescription for a barbiturate can be refilled unless the dentist so designates on the prescription. If the prescription contains, in addition to the barbiturate, sufficient quantity of another drug or drugs to cause the mixture to possess other than a hypnotic or somnifacient action, it may be refilled without a designation on the prescription.

4. Compounds or mixtures intended to be used as a spray or gargle, and which contain, in addition to the bar-

10. Staff Report. *Chem. Eng. News.* 24:2502 (September 25) 1946.

biturate, some other drug or drugs rendering them unfit for internal use, are exempt from the provisions of the Act.

The amount of time and effort required of the dentist and similarly of the physician under these provisions may seem unduly burdensome. But do not forget that the alternative is the inclusion of the barbiturates under the provisions of the Federal Narcotics Act, which would entail much more paper work.

Summary

1. The development and therapeutic status of the barbituric acid derivatives are reviewed. The accepted clinically valuable barbiturates are tabulated.

2. Deaths caused by barbiturates are shown to be increasing in many states, especially in those states with large urban populations. Where figures for 1945 are available, a sharp increase is indicated for many states. The state laws affecting the distribution of barbiturates that had been passed as of October 1, 1945 appear to have had little effect on the increase in mortality due to barbiturates.

3. The percentage ratio of cases of barbiturate poisonings to total admissions in the same hospitals for the 1928-1937 and 1940-1945 periods shows an 86 per cent increase in the frequency of occurrence of barbiturate poisonings in the 1940-1945 period.

4. The percentage ratio of barbiturate poisonings to all drug poisonings (carbon monoxide and alcohol excepted) in the same hospitals for the 1928-1937 and 1940-1945 periods shows a 193 per cent increase in the frequency of occurrence of barbiturate poisonings in the 1940-1945 period.

5. Barbiturates accounted for one seventh of the total drug poisoning cases in ten hospitals with total admissions of 1,049,785 during 1928-1937. Barbiturates accounted for one fifth of the drug poisoning cases in fourteen hospitals with total admissions of 1,060,275 during 1940-1945.

6. Available data for the United States show that although the yearly cases of suicides and fatal poisonings by all solid and liquid poisons indicate a downward trend, the yearly cases of suicides and fatal poisonings by barbiturates are increasing.

7. Progress toward uniform state legislation is discussed, and the manner in which such legislation affects the dentist is indicated. — *Samuel W. Goldstein, Ph.D., Pharmaceutical Chemist, Maryland State Department of Health.*

COMMITTEE ON LEGISLATION

TESTIMONY ON THE PAY BILLS IN CONGRESS

Two bills were introduced recently in the present Congress to increase the pay of medical officers in the armed services and each bill omitted the dental officers. At the suggestion of the American Dental Association, however, this omission was corrected by an amendment while the bills were being considered in Committee.

The first bills were H.R. 3174 for the Army and H.R. 3254 for the Navy, both introduced by Congressman Walter G.

Andrews of New York, who is chairman of the House Armed Services Committee. The bills were referred to the Subcommittee on Pay and Administration of which Congressman William W. Blackney is chairman. The Subcommittee reviewed the bills and held hearings on June 2, 5 and 6, 1947.

Congressman Blackney then introduced a new bill, H.R. 3851, a combination of the first two bills, which added the medical officers in the United States Public Health Service. This bill was passed by the Subcommittee. On June 30, the full Committee held an executive session on H.R. 3851 at which time the bill was amended to give the dental officers in the Army, Navy and Public Health Service an increase in pay of $100 a month.

The written statement prepared by the Committee on Legislation and presented by Dr. Karl H. Metz of New York, a former officer in the Army Dental Corps, at the House Subcommittee hearings on June 6, was reported in the August 1 issue of THE JOURNAL, pages 212 to 214. In addition to the formal statement Dr. Metz also gave the following oral testimony:

Mr. Blackney.—Thank you, Doctor. That is a fine statement. Let me ask: What is the total membership of the American Dental Association, do you know?

Dr. Metz.—The total membership of the American Dental Association at the present time, I believe, sir, is 61,000. There are 65,000 active dentists. There are approximately 78,000 dentists in the United States and its possessions. Some of those may be on the retired list, and so on.

Mr. Blackney.—As I understood your statement, the educational qualification is practically the same in both dentistry and medicine.

Dr. Metz.—That is correct, sir.

Mr. Blackney.—As to term of years, and so on.

Dr. Metz.—That is right, sir.

Mr. Blackney.—What is the average number of patients a dentist can care for in a year? Have you any ratio established as between dentists and patients?

Dr. Metz.—Well, I am not avoiding an answer on that, but that is rather a difficult question to answer, sir, because it depends entirely on the type of service that the dentist may be rendering. Dentistry in itself is divided into specialties, sir, and not all operations within the various specialties take the same amount of time.

Mr. Blackney.—I appreciate that.

Dr. Metz.—It is difficult for me to answer that.

Mr. Blackney.—I ask that question predicated on a statement I have from the Public Health Service that a dentist could take efficient care of approximately 500 patients. That is in the Public Health Service and not in civilian life. Mr. Shafer, have you any questions?

Mr. Shafer.—No questions.

Mr. Blackney.—Mr. Gavin.

Mr. Gavin.—How many dentists are being graduated each year?

Dr. Metz.—How many dentists are being graduated each year?

Mr. Gavin.—Yes.

Dr. Metz.—About 2,250, I believe. Is that correct, Dr. Camalier?

Dr. Camalier.—Yes, sir.

Dr Metz.—Two thousand two hundred and fifty dentists and about five thousand physicians.

Mr. Gavin.—Do you know how many boys are making application to study for the dental profession each year at our various universities?

Dr. Metz.—I do not know the number throughout the United States at the various dental schools within the various universities.

I might cite, for instance, in George Washington University they have 600 applicants and they could only take 90 students.

Mr. Gavin.—That is exactly what I am trying to determine. It was stated here the other day there were 1,500 applications received by George Washington University and they could only accept 80, I believe. What are the figures you gave, again?

Dr. Metz.—For dentists?

Mr. Gavin.—Yes.

Dr. Metz.—Six hundred applicants and ninety actually could be accepted at George Washington University. In other words, they could accept but ninety.

Mr. Gavin.—Then, evidently the same situation applies to the dentists as to the doctors. Our school facilities evidently are not adequate to take care of the pupils who are ambitious and

want to follow that profession.

Mr. Blackney.—Mr. Hébert?

Mr. Hébert.—No questions.

Mr. Blackney.—Mr. Blandford?

Mr. Blandford.—I just want to ask the doctor, if you don't have specialists in the Dental Corps, the same as the doctors have.

Dr. Metz.—We do have specialists; yes, sir.

Mr. Blandford.—How about Title II, then, of the bill, insofar as specialists are concerned?

Dr. Metz.—We are not interested in Title II, sir.

Mr. Blandford.—Thank you; that is all.

Mr. Blackney.—If there are no further questions, we thank you, Doctor.

Dr. Metz.—Thank you, sir.

Dr. Camalier.—Thank you, gentlemen.

Mr. Blackney.—Dr. Robert M. Ashley, of the American Osteopathic Association——

Mr. Gavin.—I wonder, Mr. Chairman, before the Doctor testifies, if I could ask Dr. Metz another question while he is still here?

Dr. Metz.—Yes, sir.

Mr. Gavin.—What is the American Dental Association doing to take care of these evident deficiencies we have in our educational system; that is, toward improving facilities to take care of additional students that are desirous of entering the profession?

Dr. Metz.—May I ask the assistant secretary of the American Dental Association, Dr. Camalier, to answer that for you, please?

Mr. Gavin.—Yes.

Dr. Camalier.—The association has been aware of that problem. The council on dental education has been urging the dental schools to increase their facilities. They have been getting more money from their State legislatures and from other sources. They are attempting to do it in that way. They are also urging the establishment of more dental schools in the United States. But it is a difficult situation at the present time.

Mr. Gavin.—Are you going to make a report on the matter after you complete this study that you say the association is now engaged in?

Dr. Camalier.—Yes.

Mr. Gavin.—I would like to receive a copy of that report, to indicate what the association is doing to assist us in this program toward providing facilities to take care of those that are ambitious and want to continue their school work and follow the profession.

Dr. Camalier.—I think that report will be made at the August meeting of the American Dental Association, to be held in Boston. We could be very glad to do that, sir.

Mr. Hébert.—May I ask one question?

Mr. Blackney.—Yes.

Mr. Hébert.—Is the tuition fee charged sufficient to cover the cost of the education of an individual student in a dental school?

Dr. Camalier.—No; it is not. The average dental school has to depend upon its income from clinics, unless it is supported by the State. Usually they also depend upon that income.

Mr. Hébert.—What would you say as a general rule, Doctor? What is the difference between the tuition and the actual cost of educating a dental student?

Dr. Camalier.—I wouldn't like to say the exact figures there, but I know they depend——

Mr. Hébert.—Just to give us an idea. Mr. Gavin suggested establishing new schools and the thought occurs to me, is it possible without endowment or without legislative appropriation in the case of State schools? Dr. Morgan told us yesterday that at Vanderbilt there is a $650 fee per year and it cost $4,000 a year to educate the individual, so you see there is a difference of $3,350.

Dr. Camalier.—That is about the same thing for dentistry, except it costs a little more——

Dr. Metz.—It costs more.

Dr. Camalier.—To educate a dentist than it does a physician, because of the equipment that he must buy. I would say there is quite a disparity there. I wouldn't like to give the figures at this time. I can furnish those to the committee, however. I would be very glad to do that.

Mr. Hébert.—All right.

Mr. Blackney.—I have a statement here, Doctor, that says the dental equipment would average from $600 to $1,000.

Dr. Camalier.—That is true.

Mr. Blackney.—That would be your judgment?

Dr. Camalier.—That is true.

Dr. Metz.—Yes.

Mr. Gavin.—But the American Dental Association is giving very careful attention to that particular problem at this time.

Dr. Camalier.—Absolutely; we certainly are.

Mr. Blackney.—Give your full name to the reporter, Doctor.

Dr. Camalier.—Dr. C. Willard Camalier, secretary of the military affairs committee, American Dental Association.

Mr. Blackney.—Thank you, Doctor.

BOOK REVIEWS

Food, Teeth and Larceny. By Charles A. Levinson, D.M.D., Boston. Second edition. 232 pages. Price $3. New York: Greenberg, Publisher, 1947.

This is the second and enlarged edition of a book previously published in 1940. The author has had vast experience with claims against industries, firms, restaurants, manufacturers and vendors of foods. He presents a series of illustrative case reports in which are discussed claims made by persons who allegedly or actually break a tooth or injure the soft tissues of the mouth by biting into a foreign substance in the food which they eat in restaurants or which is packed in containers outside the home. Although there is no doubt that the insurance companies are beset with malingerers and others who make false claim for damages, it is also certain that accidents do occur and often cause great damage to the persons involved. This reviewer considers it bad taste for the author, a dentist, to cite a rare instance of a dentist, who, in collusion with an unscrupulous patient, attempted to defraud an insurance company.

It would seem that the author would have presented a stronger case for the insurance companies if he had shown examples of justifiable claims against insurance companies as well as fake ones. The fact still remains that many restaurants and other concerns which dispense and pack food are periodically brought to justice for unsanitary conditions if not for actually poisoning the public.

The author points out that a new field for dentists and physicians is to be found in the handling of damage claims against manufacturers and vendors of foods. Advice is presented on how to handle food hazard cases, questions to be asked of the claimants and the proper method of examining the dentist or physician's report. Of interest is the advice on how the dentist or physician may present expert testimony in court. Answers should be given briefly without involved scientific explanations. Although the author arrives at the conclusion that "the greater part of these [claims] must be fraudulent, because under the present conditions in most states the introduction of foreign substances into food is a physical possibility," the Pure Food and Drug laws are generally considered to be inadequate and they are inadequate mostly because they have been fought tooth and nail in the past by the manufacturers and packers of foods. —*J. A. Salzmann.*

Journal of the History of Medicine and Allied Sciences. A quarterly. New York: Henry Schuman. Subscription rate $7.50 a year; single copies $2.50.

Henry Schuman, antiquarian bookseller and publisher, who has specialized in books on medical history for more than a dozen years, has added this new quarterly to the already impressive list of publications associated with his imprint. The only other American journal in this field at present is the *Bulletin of the History of Medicine,* and since the discontinuance of the quarterly *Annals of Medical History* in 1942 there has been need of additional outlets for scholarly historical studies. Perusal of the first volume of this new journal, now complete, leads one to believe that the *Annals* has a worthy successor.

Editor George Rosen has both the professional training and the experience to qualify him for his position. Among his assistants are many names long prominent as medical historians.

During its first year the *Journal of the History of Medicine and Allied Sciences* has made good its promise of publishing "work relating to all aspects of the history of medicine, public health, dentistry, nursing, pharmacy, veterinary medicine and the various sciences that impinge on medicine."

The October 1946 issue is one that many persons will want to own even if they do not become regular subscribers. It is the anesthesia centennial number, and its twenty-two articles cover the history of anesthesia in all its phases and in all parts of the world. Thomas E. Keys, Noel A. Gillespie, Edward H. Hume and Chauncey D. Leake are among the contributors who add authority and distinction to this collection.

Each issue has averaged almost two hundred pages on a mat paper of good quality. The format in simple good taste gives the journal an appearance of easy readability.—*Murrell C. Wellman.*

The School Administrator, Physician, and Nurse in the School Health Program: Functions and Education. A report sponsored by the National Conference for Cooperation in Health Education. School Health Monograph No. 13. 56 pages. New York: Metropolitan Life Insurance Company, 1946.

Although this report specifically deals with the school administrator, the physician and the nurse, it merits the consideration of dental societies and dentists interested in school health programs. Careful reading of the contents will impart information concerning general policies which are involved in school programs. One must agree with the report in the conclusion that "a physician or a dentist, who has met the standards of education and training set up by his profession, is equipped to practice it wherever there are human beings in need of his services. But when a specialist performs his functions within a specific framework, it seems desirable that his professional education should include preparation for serving within that framework."

The process by which the report was developed is suggested as a method for "defining the activities and improving the education of school health personnel by many other groups concerned with school health. The technic of thinking together, working together, and planning together to develop the best plan for united action in a given program, with each participant understanding his responsibilities in relation to the work of others, can be used successfully in solving school health problems throughout the country. In doing so, more impetus may be given to the improvement of professional education."

The contents, representing the cooperative thinking of many accepted authorities in the field of school health, include "purpose and scope, method of organization and development, the functions of the school administrator in the school health program, the functions of the physician serving the school, the functions of the nurse serving the school, the coordination of the functions of administrator, physician, and nurse in the school health program, the education of the school administrator, the education of the physician serving the school, and the education of the nurse serving the school."

Throughout the report, the necessity of coordination in school health programs is emphasized. "When the forces of public health and the forces of public education present a united front, regardless of which are jurisdictionally responsible for what, the combination is a powerful one. This has been proved many times over from the state level downward in localities where the Department of Health and the Department of Education have excellent working relationships."

So important did the authors believe this factor of coordination to be that they devote sixteen pages of fine type to an outline giving minute details for the coordination of administrators, physicians and nurses in the four areas of a school health program—home and community relations, school health service, control of environment and health education.

It would seem that the Council on Dental Health of the American Dental Association might consider the possibility of following up this report with a monograph describing the functions and education of a dentist in the school health program.—*J. M. Wisan.*

The Surgeon Dentist or Treatise on the Teeth, by Pierre Fauchard. Translated from the second edition, 1746, by Lilian Lindsay, L.D.S. 128 pages, with 42 illustrations. London: Butterworth and Co., Ltd., 1946.

Here is a book for which the English-reading dental profession has waited two hundred years. Fauchard's *Surgeon Dentist (Le Chirurgien Dentiste)* was first published, in French, in 1728. A second, somewhat enlarged, edition was issued in 1746, and a third, after the author's death (1761), in 1786. The book was translated into German in 1733, but has never since, before the present English version of the second edition, been translated into any other language. As the most famous dental book of all time, this work, published in the present version, can hardly be a matter of indifference to any one interested in the profession.

Fauchard's *Surgeon Dentist* occupies the pre-eminent historical position of being the first professional work on dentistry. Previously, the relatively few books published on the teeth either had been works on anatomy such as that of Eustachio (1563) or had been designed to instruct the general reader on the care of the teeth or to advise the small town surgeon who, in the absence of a dentist, might be called on to deal with oral conditions. Fauchard, in contrast, had the dentist and the dental student in view and produced the first textbook of dentistry.

In detailing the technic of dental practice and divulging the secrets of the profession, Fauchard departed from the tradition of centuries. Until his innovation, practitioners had closely guarded their knowledge as proprietary possessions which were to be transmitted to other dentists or to students only for monetary consideration. In spite of this defection on the part of Fauchard, his book was received enthusiastically by his colleagues and served as an example and inspiration to other distinguished practitioners. The result was the production, in France, during the next few years, of a considerable number of other books, the authors of which, for the most part, regarded their own works as supplementing the great work of Fauchard. The precedent set by French writers was followed to some extent in Germany, Italy and England, and resulted in original and valuable contributions before the close of the century. Among the best known of these to English readers were Berdmore's practical work (1768) and the great *Natural History of the Teeth* of John Hunter (1771-1778).

Fauchard's book, within reasonable space, gives a comprehensive view of the whole of dentistry in the eighteenth century, detailing the entire resources of the profession as regards opinion on etiology and pathology, the instruments, the operations, the appliances and the restorations available. The reader of this volume will perceive at once how advanced in some respects and how primitive in others dentistry was two hundred years ago. It will be good for the practitioner who regards the present attainment of dentistry with complacency and also for the dentist who is under the delusion that the accomplishments of his profession are entirely the products of twentieth century technology. It will tend to strengthen in every dentist a consciousness of the great community of the profession extending not only geographically over the world of today but also backward and forward throughout time.

The original work was in two parts, each in a separate volume. The first contained principally the information and theory with regard to dental disease and its treatment which might be of interest to the physician and surgeon or, possibly, even to the general reader. The second gave the technical instruction which the student of dentistry would need to acquire in order to practice his art.

Fauchard's book reveals him as somewhat of an inventor and discoverer in his chosen field. He was probably first to note and describe hypoplasia of the teeth, which he called "erosion" and regarded as predisposing to caries. He introduced the use of jeweler's enamel as a means of improving the esthetics of dentures, and he was probably first to design upper dentures retained without a special device such as intermaxillary springs. He has been credited with originating many things in dentistry which he merely recorded from contemporary practice. Historians, finding in Fauchard's book the earliest account of a device, method or bodily condition, have wrongly assumed that he was the innovator. The great French dentist was not backward in claiming priority whenever he believed he merited it; and unless he made the claim of originality explicitly, it is safe to conclude that he was merely recording a contemporary resource of the profession. He did not, as is sometimes asserted, introduce full dentures retained by springs; he did not invent the expansion arch; he was not the first to observe or describe periodontitis. Neither did he nor any of his contemporaries employ porcelain for prostheses. He did, however, give a fairly minute description of many procedures and devices which had not been previously made public, and for this service he deserves great credit.

The adequacy of the translation could be determined only by a close comparison of the original with the present version. In such passages as the reviewer has had occasion to put to test, the rendition appears, on the whole, to be faithful. In two places only—and only one important—the reviewer has questioned the interpretation. How delicate is the task of reproducing precisely the meaning of the original is represented by one passage in Fauchard's preface. Fauchard, in the translator's English version, says of his book: "I did not compose the work except after much experience gathered in general surgery and confirmed by varying success. . . ." This statement is important as regards the life of Fauchard, concerning which we know very little, and especially since it has long been a point of controversy whether or not he was a qualified surgeon. This translation, if correct, seems to solve the problem. But literally, the passage says: "I have composed this book only after having gathered much information derived from good surgery, and confirmed by various successes."

In other words, the passage implies, not that Fauchard was trained and had practiced as a surgeon, but that he had acquired surgical knowledge from other surgeons or their books.

The publication of this work of pre-eminently historical importance, on its two hundredth anniversary, is something of a commemoration. Its publication is also something of a memorial to its translator, marking the fiftieth year of her membership in the British Dental Association. Mrs. Lilian Lindsay has for twenty-five years been the honorary librarian of the national organization and is now serving as its first woman president. She is the widow of the late Robert Lindsay, one time secretary of the association, himself a distinguished British dentist for whom the association library was named. Mrs. Lindsay has earned distinction in the literature of the profession by her historical contributions. The first edition of the present volume was published by subscription of the members of the British association. A second printing is generally available.—*George B. Denton.*

The Anatomy of the Nervous System: Its Development and Function. By Stephen Walter Ranson, M.D., Ph.D.; revised by Sam Lillard Clark, M.D., Ph.D. Eighth edition. 532 pages, with 417 illustrations. Price $6.50. Philadelphia: W. B. Saunders Company, 1947.

Ranson's textbook on neuro-anatomy, by many regarded as *the* textbook on neuro-anatomy, has after Ranson's death been revised by his pupil Clark. The changes from the seventh edition are not too great. From a didactic point of view the unification of the gross description of the human brain in one chapter is at once the most decisive and most advantageous change. An introductory section to the chapter on "clinical illustrations" has been added. The sagittal sections through the brain stem (Figs. 392 to 400) are a most helpful addition. Other minor changes, for instance, elimination of the term "sympathetic" in favor of "autonomic" nervous system, are certainly to be welcomed.

This reviewer would suggest the consideration of other changes. First, some of the illustrations should be replaced by freshly planned diagrams. Figures 250, 251, 252 and 255, to mention only a few lacking the clarity which is indispensable for an understanding by the beginner, are far too small and crowded. In particular the exact location and arrangement of the synapses can be traced only with difficulty. Some diagrams attempt to show too many details and are therefore confusing rather than clarifying; for instance, Figures 106, 107, 168, 176 and 177B and 266. The legend to Figure 64 (from Mettler's book on neuro-anatomy) had been cited incorrectly in the previous edition, and this error has not been corrected. The diagram does not show "the intracranial venous channels and their connections with extracranial veins" (Mettler's Fig. 45A) but rather "the internal venous channels of the cerebrum" (Mettler's Fig. 45B).

In the chapter on cranial nerves the student is confronted with the paradox nomenclature which terms the motor fibers to the branchiogenic muscles "special *visceral* efferent fibers" although they and their effectors behave structurally and functionally as do somatic nerves and muscles. Would it not be better to designate these fibers as "special *somatic* efferent fibers" to stress at the same time the identity in structure and function but the difference in development of the muscles supplied by these fibers?

In the description of the great afferent systems the reviewer would like to see an introductory paragraph explaining the *common* architectural plan of the three great sensory tracts: the cell of their first neuron is always found in the spinal ganglion; the levels of synapse of first and second neuron are staggered through spinal cord and medulla; the axon of the second neuron crosses immediately after arising from its cell and ends in the thalamus where the third neuron takes over to complete the connection with the cerebral cortex. Finally, it is suggested that the emphasis in the chapter on applied neuro-anatomy (clinical illustrations) be reversed. The logical approach leads, in the opinion of this reviewer, from anatomy to clinic and not from clinical symptoms to their anatomic interpretation. Would it not be more instructive to attempt the correlation between theory and practice as has been done in the case of lesions of the optic pathways (Fig. 274); that is, to point out the typical lesions and deduce from their localization the symptoms produced?

Ranson and Clark's textbook will live on as a monument to the pioneering work of American neuro-anatomists. The reviewer would like to reiterate his admiration for this standard work which his criticism of some details cannot lessen and should not obscure.—*Harry Sicher.*

Scientific Instruments. Edited by Herbert J. Cooper. 305 pages, illustrated. Price $6. Brooklyn: Chemical Publishing Co., Inc., 1946.

The preface to this book states, "It often happens that one scientist would like to know something of the fundamental principles and uses of the instruments used by his colleagues .... Scientific instruments are here described in a way that may be understood by the non-specialist." It is particularly disappointing that this book does not appear to be as useful as these commendable objectives would indicate.

In this reviewer's opinion the authors have attempted to compress too wide a range of topics within too small a book. The result has been condensation but not simplification. The British terminology and spelling may be somewhat confusing to the American reader. When the "tacheometer" is discussed in connection with surveying instruments, it would be helpful to differentiate between this instrument and the tachometer employed in measuring speed. The fact that the instruments described are largely of British manufacture reduces the book's value to the American reader. Numerous inaccuracies are apparent, of which the following are typical: On page 34 the word "substage" is used to refer to the stage of the microscope; on page 48, the reference to the sodium D line as 5893 angstroms infers that this is a single line of exactly the wave length indicated.

For the critical reader this book may have value in suggesting principles which may be utilized in the solution of individual problems of measurement or control.—*J. R. Doty.*

Free Medical Care. Compiled by Clarence A. Peters. "The Reference Shelf" Series, Vol. 19, No. 3. 378 pages. Cloth. Price $1.50. New York: H. W. Wilson Company, 1946.

The title of this volume is a misnomer about which both advocates and opponents of compulsory health insurance would be equally vocal. The book is not concerned with provision of free medical care but with arguments for and against the establishment of compulsory health insurance. For many years the publishers have held a pre-eminent position for their work in producing reference volumes on timely subjects of public concern. This book follows the established format, being a compilation of articles and abstracts gleaned from hundreds of documents which have appeared during the past six years.

Approximately equal space is devoted to the presentation of general background material and affirmative and negative discussion. Included are articles from popular and scientific magazines and abstracts from books, reports and speeches. Authors, organizations and public figures represented here include most of those connected with this issue in the United States, as well as a number representing other countries. Extensive verbatim portions of about fifty leading articles and reports are presented, as well as many brief editorial comments from newspapers and magazines. Also included is a detailed outline of arguments for and against health insurance and a twenty-five page bibliography.

At the present moment, it appears that agitation for compulsory health insurance in the United States is ebbing. For this reason, this volume may be considered to be of historical value in presenting a picture of the main currents of thought in various socio-economic groups in our population during this period. However, the volume is of continuing value as a presentation of basic facts as well as of opinions on a problem which still is of great concern to the dental and medical professions, to the public and to the government.—*J. E. Bagdonas.*

Facial and Body Prosthesis. By Carl Dame Clarke, Ph.D., associate professor of art as applied to medicine, School of Medicine, University of Maryland; captain, Sanitary Corps, United States Army, Department of Moulage and Prosthetics, Army Medical Museum. 200 pages, with 75 illustrations. Price $5. St. Louis: C. V. Mosby Company, 1945.

This textbook on facial and body prosthesis is written from the interrelated points of view of the dentist, the surgeon, the artist and the prosthetist. The author does not advocate the use of a prosthesis in preference to surgical repair but recommends a prosthesis only when the defect is large and the repair extensive.

Reconstruction of large defects, such as war wounds, is well described. The various methods of constructing a prosthesis are discussed in detail. The procedure of taking impressions with plaster of paris and hydrocolloid materials is outlined. The making of casts, plaster or metal, is described and the advantages dis-

cussed. Numerous chemical formulas of essential materials are given.

The technic of using materials containing agar for obtaining impressions of human tissue is described at considerable length, and the advantages and disadvantages of gelatin-glycerin compositions are discussed. The uses of unvulcanized and vulcanized latex incorporated with fillers, softeners and plasticizers are well illustrated.

The adaptation of the finished prosthesis to the body has always constituted one of the chief problems in the use of prostheses. A chapter is devoted to this problem, and many constructive suggestions are given. Adhesives such as gum mastic are recommended and described in detail.

Those interested in facial prosthesis and in the intricacies of prosthetic construction will find this book of much value.—*Kenneth W. Penhale.*

The Psychobiologic Foundations in Dentistry. By Edward J. Ryan, D.D.S. 131 pages. Price $3. Springfield, Ill.: Charles C. Thomas, 1946.

The basic tenet of this book, namely, that man must be treated as a whole, is one of such importance that it certainly deserves to be formulated in a book for the careful consideration of dentists. The author stresses the fact that dentists are too often completely preoccupied with mechanics and forget the patient as a person, a practice which seriously undermines the success of total treatment. Individual variations in tissue tone, in resistance to bacterial invasion, in susceptibility to pain and in emotional attitudes toward pain are emphasized as extremely important in making each dental procedure a highly individual problem.

Some evidence is given as to how emotional stress has been shown to have powerful physical effects on various parts of the organism. The author then formulates a general hypothesis as to how emotional stress, such as is frequently seen during adolescence and during the difficult readjustments necessary in military life, might well be the unknown factor in precipitating the rapid dental caries frequently observed in such periods. The destruction of hard parts is obviously a bacterial process and can be remedied only by mechanical procedures, but emotional stress might be a contributing factor in caries by means of changing the chemistry of the saliva, by changing tissue resistance and tone and by causing vascular changes in the soft tissues which could prepare the mouth for bacterial attack. It is pointed out that, unlike many other psychosomatic processes, this one is irreversible.

Another important contribution of this book is its insistence on the fact that success in dental practice depends on satisfactory relations between the dentist and the patient. The author's description of children's anxiety toward the dentist and his practical suggestions as to how to handle this anxiety are especially important.

The third useful contribution of this book is a discussion of typical attitudes of people in different age periods, and it is shown how these attitudes have a vital influence on the success of dental procedures. With older children, the necessity of appealing to them on a level of their own interests rather than on adult moral terms is well stressed. The peculiar problems of the climacteric and of the attention-seeking hypochondriasis of old age are discussed. The need for psychologic preparation for the use of dentures is especially emphasized, as a readiness to accept dentures is of prime importance in their success.

In spite of the fact that there is a great need for this kind of book and although the points summarized above are well taken, this book suffers from some important defects. It is much too general and philosophical and not well enough documented with specific details to be convincing to the sceptical dentist who is prejudiced against psychiatry. It is most regrettable that no case histories are given to illustrate the points made, and few specific, practical suggestions are given to aid the dentist in applying this general approach to daily clinical situations. Such problems as thumb-sucking, teeth-grinding and other oral habits should be discussed, as well as ways of handling and calming upset patients who have been traumatized previously by an improper dental approach. The important psychosomatic problem of glossodynia has been omitted completely. Although constitutional types are interesting, the stress laid on them in this book seems to be out of proportion, and a chapter on psychodynamics, including a brief discussion of some prevalent neurotic types and behavior patterns, would be more useful. However, the general attitude of the book, plus the bibliography, might well be a good starting point for a person who wishes to study this interesting field. —*Ruth Moulton.*

CASES AND COMMENTS

Dental Care Under the Proposed Universal Military Training Program

To the Editor: The proposed Universal Military Training Program provides for the training of approximately 600,000 young men each year. If called upon, the Army Dental Corps will prepare plans for the dental care of these youths during the six months that they will be on duty.

At the start of World War II it was generally believed that a man with less than twelve remaining teeth (six upper teeth and six lower teeth) in serviceable occlusion was not physically qualified for strenuous military duty. It was soon apparent, however, that nine men out of every hundred called by Selective Service failed to meet even this minimum requirement. The man power needed to build an effective fighting force was obtained only after dental standards for induction were practically eliminated and the Dental Corps assumed responsibility for the rehabilitation of some 800,000 registrants who would otherwise have been rejected for dental defects.

There is no evidence that the situation has improved materially since 1938, when an investigator for the United States Public Health Service reported that Americans between the ages of 6 and 20 years were receiving only a little more than a fifth of the dental treatment they needed each year. If the desired number of trainees is to be obtained, it will not be possible to establish dental standards higher than those in effect during the war. It may be expected that men called for peacetime military training will present an average of at least seven carious teeth and that many of them will already be partially crippled by the premature loss of masticating efficiency.

During the war it was essential that men going into active combat be in the best possible dental condition, and nearly 30 per cent of the dentists in the United States were called to render the necessary treatment. Peacetime trainees, on the other hand, are essentially civilians who are lent to the Army for only six months out of their adult lives. Even if such a step were practical the Dental Corps would not feel justified in asking the recall to military service of the thousand or more dentists who would be required to correct, in the short time available, all the dental defects accumulated by trainees during childhood and adolescence. Enrollees in universal military training would receive the high-quality routine treatment needed to ensure that they suffer no deterioration in their dental health while they are with the armed forces, and many of them would return to civilian life in better dental condition than when they left their homes. Responsibility for their long-term dental care, however, will remain with the civilian dental profession.—*Office of the Surgeon General, War Department, Washington, D.C.*

Chapped Lips as a Predisposing Condition in Carcinoma of the Jaw and Neck: Report of a Case.

By Seymour Zeff, D.M.D., New York.

Chronic, insignificant irritations have produced body changes favorable for the growth of malignant tissues. The public is warned and advised to visit a competent diagnostician as soon as any abnormal masses or visible growths appear, but why is not the public more vigorously warned to seek the advice of a physician or dentist when a chronically irritated site is present? The physician and dentist can then arrive at the source of irritation and eradicate it before a possible malignancy results.

The responsibility for the observation of any suspicious changes in tissues or the determination of what constitutes a chronic irritation does not lie entirely with the patient but rather with the physician or dentist. Too many examinations are performed hurriedly, inaccurately and without a true perspective of the patient as a whole.

This article presents a case of carcinoma of the jaw and neck which was probably predisposed by chronic chapped lips.

The patient, 37 years of age, weighed 202 pounds and was robust in health and build when he appeared at the tumor clinic of the hospital complaining of a small lesion on his lower lip. A small ulcer 1 cm. to 1.5 cm. in size was present on the left half of the lower lip midway between the mid-line and commissura.

There was no apparent metastasis and no visible or palpable involvement of the lymph nodes. The patient recalled that he had had chapped lips for a long time, particularly in this region.

A V-shaped incision was made in the lower lip, and the lesion, with a good margin of surrounding healthy tissue, was removed. No glands could be demonstrated in the submental or cervical regions. The report on the biopsy stated that the lesion was an epidermoid carcinoma, grade 3. After his discharge from the hospital one week later, the patient was seen regularly in the clinic. Since no metastasis was demonstrated, it was felt that radiation therapy was not necessary.

One and a half years later the patient noticed a swelling on the left side of his face, which was increasing in size and producing a decided deformity of his face. He procrastinated for three months before returning to the clinic. His weight had decreased from 202 pounds to 188 pounds during the past several months. The mass was found to involve the mandibular region on the left side and to extend into the neck, involving the lymph glands of the neck and the submaxillary gland. The growth was excised, and the report on the biopsy again stated that epidermoid carcinoma, grade 3, was present. Nine days later the patient was discharged and told to return to the clinic regularly to receive deep radiation therapy.

Five months later the patient was admitted to the hospital for another operation to excise carcinomatous tissue of the neck. There was a hard, firm mass, well defined, 3 cm. by 5 cm. in diameter and elevated 2 cm., on the left lateral aspect of the neck. The mass was well attached, had infiltrated into the surrounding tissues and involved the lymph nodes in the posterior cervical triangle of the neck. Edema was present in the surrounding regions. No radical dissection was possible because of the presence of much infection, and an incomplete closure had to be resorted to. The report of the biopsy stated that the excised mass from the neck was epidermoid carcinoma, grade 3, in the skin, with ulceration and necrosis. Hyperplasia of the lymph nodes was reported. After his discharge from the clinic one week later, the patient returned regularly for deep radiation therapy.

Pus was observed in the incision eight weeks later, and the region showed a progressive growth. The patient now weighed 170 pounds, and he appeared pallid. Pain developed in the left ear, and an occasional hemorrhage from the lesion occurred. Radiation therapy was halted, and readmission to the hospital was advised.

Appearance of tumor three weeks before death of the patient.

The chief complaints were pain and continuous throbbing of the left side of the jaw. A large ulcerated region, resembling a crater, the base of which was covered with a purulent, foul smelling discharge, was present on the left side of the mandible (see illustration). The region surrounding the lesion was red, edematous and very tender. The patient had little mobility of the jaw. Six weeks later he died.

Autopsy findings showed the following pathologic conditions: (1) epidermoid carcinoma of the lip with ulcerative invasion of the left side of the lower jaw and the upper cervical region; (2) bilateral bronchopneumonia; (3) acute tracheobronchitis; (4) passive congestion of the liver and lungs; (5) emaciation.

Microscopically, the section of the tumor showed a strip of stratified epithelium, ulcerated by the tumor, which was made up of solid masses and strands of large pink cells, with pleomorphic and hyperchromatic nuclei, the latter with nucleoli. There was scattered mitosis, together with scattered bizarre cells,

some with more than one nucleus. The stroma consisted of thin strands of connective tissue. Necrosis and hyperemia were present in large regions.

All forms of chronic irritation should be considered as being possible precursors of malignancy. Chronic chapped lips may be added to that category.—*60 Park Avenue.*

Use of Sound Motion Pictures to Divert Patients. By Charles Graves, Jr., D.D.S., San Diego, Calif.

Fear, induced by previous experiences in a dental chair, sight of the instruments or harrowing tales of relatives and friends, produces a state of mind in the patient which is a serious handicap to every dentist. The art of diversion has been used in many professions with much success, and I have been able to use sound motion pictures to great advantage in my office.

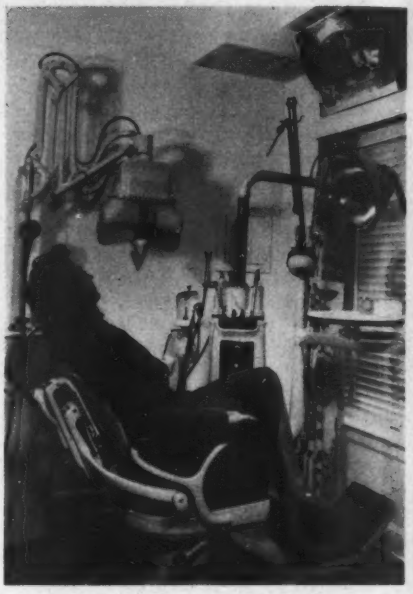
A heavy, commercial type machine such as the 16 mm. Holms sound projector has proved efficient. A 500 watt lamp is sufficient for most operating rooms. A small semisound-proof enclosed cubicle with an opening into the operating room affords a convenient and compact receptacle for the projector.

A screen of glass bead, about two and a half feet in diameter, should be placed almost on the ceiling. It should be five feet from the patient's eyes and as nearly parallel with the patient's resting head as possible. As the illustration shows, this position gives the patient a good view of the screen and does not interfere with the dentist's work.

The best crystal type earphones should be used. The sound helps to eliminate the noise of the vibration of the bur.

If injections are to be given, it is advisable to give them before starting the movies.

The selection of film is important. Cartoons and fairy tales are suggested for children. Men prefer sports, fishing or hunting films, and women like gardening, fashions and human interest stories. A patient may become overstimulated if shown a film that is extremely funny or exciting. Films can be rented or purchased at various camera shops or directly from Hollywood.



Position of the screen

Small lights placed strategically on top of the cabinet will reflect when any of the drawers are opened, so that the instruments can be found easily. Light also reflects from the screen and makes the room fairly well lighted. A small orchestra stand light may be affixed to the bracket table if desired.

When two chairs are being used, the dentist may leave a patient for some time without causing the patient to feel neglected. Motion pictures are a great help in cutting down patients' questions and the desire to expectorate so often. The patient is diverted from the dentist's work, time passes quickly, and instead of dreading the next appointment the patient looks forward to it.—2223 *El Cajon Boulevard.*

LIST OF DENTAL OFFICERS

SEPARATED FROM ARMY DENTAL CORPS

THE following list of dental officers separated from the Army Dental Corps does not include rank because such information is no longer furnished by the Surgeon General's Office. Publication will be given to other names as soon as possible.

Alabama

Crossville	Erwin, Luther J.
Mobile	Goodloe, John R.
Russellville	Jones, Thomas S., Jr.

California

Arlington	Francis, Warren M.
Bell	Taylor, Ernest G.
Beverly Hills	Brewster, Stephen M.
Hollywood	Schumacher, Lee R.
Lodi	Holand, Elmer A.
Los Angeles	Bailey, Ronald A.
Los Angeles	Beauchamp, Eric C.
San Diego	Lande, Sylvan
Whittier	Dorsett, Walker C., Jr.

Colorado

Denver	Raabe, Max H.
Golden	Peters, William V.
Leadville	Williams, Herbert T.

Connecticut

Bridgeport	Levine, Lawrence M.
Hartford	Bronstein, Hyman H.
Norwich	Grodner, Milton D.
Simsbury	Rotondo, Guerrino L.
Stamford	Rubin, James E.
Unionville	Shapiro, Robert P.

Delaware

Bridgeville	Mach, Joseph S. C.

Florida

Gainesville	Taylor, Robert S.

Georgia

Gordon	Lee, Daniel F.
La Grange	Smotherman, Fred L.
Stone Mountain	Tuggle, Charles S., Jr.

Idaho

Laclede	Mead, Kermit T.

Illinois

Chicago	Bosack, Stanley R.
Chicago	Duffy, Daniel F., Jr.
Chicago	Gewartowski, Henry T.
Chicago	Howard, Gordon D.
Chicago	Kamenetzky, Alec L.
Chicago	McDonald, Alonzo B.
Chicago	Nyboer, Andrew G.
Chicago	Uczen, Bruno F.
Chicago	Wroblewski, Fred K.
Franklin Park	Francis, Harry B.
Mt. Olive	Becker, Vernon G.
Whitehall	Haynes, Harrington C.
Winnetka	Frankel, John M.

Indiana

Evansville	Redding, Charles A., Jr.
Indianapolis	Brown, Robert V.
Indianapolis	Jefferis, Loren W.
Terre Haute	Slinkard, Robert H.

Iowa

Chariton	Krueger, Willis E.
Des Moines	Taylor, William F.
Manning	Kelsey, Raymond B.
Sioux City	Dishlip, Martin I.

Kansas

Osborne	Tuttle, Richard H.
Wakefield	Chestnut, Joseph L.

Kentucky

Louisville	Noel, Leslie W., Jr.

Louisiana

Amite	Scarle, John S.

Maryland

Baltimore	Kraus, George C.
Baltimore	Steiner, Jerome

Massachusetts

Chelsea	Marlin, Albert G.
Lawrence	Himmer, Frank E.
Lynn	Morrow, Richard D.
Lynn	Peretzman, Nathan
Lynn	Wheeler, Edward L.
Revere	Herman, Samuel S.
Roxbury	Yarosh, Morris
Tewksbury	Mahoney, John P.
Waltham	Reilly, Harold B.

Michigan

Detroit	Lawson, Jack S.
Detroit	Pensler, Paul
Flint	Kaufman, Frederick
Hastings	Lowry, Francis E.

Minnesota

Austin	Fossey, Darol E.
Minneapolis	Halter, Cyril J.
Minneapolis	Tender, Howard M.

St. Paul	Gregg, Richard J.
St. Peter	Larson, Richard E.
Mississippi	
Carthage	Taylor, James H.
Missouri	
Higginsville	Rabashal, John H.
Lexington	Peters, Urban R.
Macon	Griffiths, Robert H.
University City	Mueller, Henry J.
Montana	
Great Falls	MacKenzie, Allen S.
Nebraska	
Burwell	Wood, Robert W.
Elwood	Seberg, John R.
Lexington	Hirsh, Harold E.
Lincoln	Herrmann, Charles W.
Lincoln	Kern, Paul D.
Omaha	O'Connell, James T.
Valparaiso	Sklenar, Rudolph E.
New Hampshire	
Groveton	Israel, Solomon
New Jersey	
East Orange	Theurer, Albert W.
Plainfield	Freinberg, Norman
Trenton	DiBalsi, Dominic F.
Vineland	Phaff, Louis
Wrightstown	Freint, Stanley D.
New York	
Bellerose	Rudolph, Robert E.
Brocton	Gawlowicz, Harry J.
Bronx	Katz, Irving
Bronx	Kotch, Saul M.
Bronx	Pasnik, Joel
Bronx	Pinsley, Herbert
Bronx	Sachey, George E.
Bronx	Schnall, Herbert
Brooklyn	Aragona, George
Brooklyn	Bolatin, Louis
Brooklyn	Ciuffo, Armand A.
Brooklyn	Delamn, Vincent A.
Brooklyn	Fedder, Albert
Brooklyn	Fernbach, Herbert J.
Brooklyn	Hoffnung, William
Brooklyn	Holtzman, Sidney
Brooklyn	Horowitz, Herbert
Brooklyn	Kornfeld, Paul
Brooklyn	Lehrman, Seymour
Brooklyn	Lewin-Epstein, Jacob
Brooklyn	London, Albert
Brooklyn	Neuren, Fred A.
Brooklyn	Panken, Irving J.
Brooklyn	Picozzi, Anthony
Brooklyn	Rosenfeld, Philip J.
Brooklyn	Sackler, Alvin M.
Brooklyn	Silverberg, Roland L.
Brooklyn	Teller, Bernard H.
Buffalo	Bembenista, Henry E.
Edwards	Brown, Robert H.
Flushing	Navratil, Jerry R.
Flushing	Smyth, Russell J.
Fredonia	Ognibene, Frank A., Jr.
Hempstead	Lubetkin, David S.
Henrietta	Seldon, Meyer
Kenmore	Mangano, Michael
Lake Placid	Epstein, Charles
Liverpool	Schamu, David J.
Long Island	Esposito, Joseph N.
Long Island	Maidman, Harold
New York	Blumenthal, Ira H.
New York	Buchsbaum, Robert B.
New York	Fishman, Erwin L.
New York	Friedman, Joseph L.
New York	Goldstein, Harry B.
New York	Heller, Stanley S.
New York	Orange, Robert A.
New York	Orr, Harold
New York	Ozick, Julius
New York	Raffman, Halsey L.
New York	Selvern, Murray E.
New York	Shpuntoff, Harry
New York	West, Earl
New York	Whitman, Eugene M.
New York	Yellin, Harold
Niagara Falls	Ray, Norman L.
Niagara Falls	Violante, Mario J.
Norwich	Taranto, Angelo S.
Oneonta	Pondolfino, Samuel A.
Port Chester	Cramer, Henry
Queens Village	Ross, Harry
Rochester	David, Alan W.
Rochester	Greenbaum, Noah J.
Rochester	Isaacson, Bernard
Rochester	Mancuso, Anthony J.
Scarsdale	Rappaport, Benjamin
Smithtown Branch	Molinoff, Henry C.
Spring Valley	Heller, Mitchell S.
Spring Valley	Lipman, Everett S.
Utica	Brooks, Seymour
Utica	D'Esopo, Ferninand P.
Yonkers	Gottfried, Leonard
Ohio	
Akron	Kirk, Rutledge H.
Akron	Liebert, Joachim H.
Cincinnati	Hirsch, David S.
Cleveland	Carfagna, Peter E.
Cleveland	Gentilly, James M.
Cleveland	Silberman, Edwin I.
Columbus	Dembo, Jack Z.
Columbus	Levine, Myron D.
Columbus	Smilack, Benjamin J.
Columbus	Wilks, Francis I.
Lorain	Miraldi, Aldo P.
Shaker Heights	Racek, Robert B.
Toledo	Bata, John, Jr.
Toledo	Frankel, Sheldon
Worthington	Merrill, Robert P., Jr.
Youngstown	Farrell, Edward W.
Zanesville	O'Morrow, Walter H.
Pennsylvania	
Allentown	Judt, Edward F.
Grove City	Jackson, Cyrus A., Jr.
Irwin	Nemec, John L.
Jeannette	Caserio, James J.
Jermyn	Mullen, Gerald P.
Kane	Lind, William F.
Middletown	Peters, John F.

DEATHS

Abbott, James H., Philadelphia; Philadelphia Dental College, 1898; died June 8; aged 76.

Axline, Melford, St. Louis; died June 29.

Bannan, Peter C., Newburgh, N. Y.; Pennsylvania College of Dental Surgery, 1900; died June 16.

Beisel, Max A., Mankato, Minn.; School of Dentistry, St. Louis University, 1915; died July 18; aged 50.

Bennett, C. W., Ft. Smith, Ark.; died June 3; aged 38.

Black, Ben Z., Chicago; Chicago College of Dental Surgery, Dental Department of Loyola University, 1919; died July 14; aged 55.

Boatner, David N., Brooklyn; Chicago College of Dental Surgery, Dental Department of Loyola University, 1907; died June 28; aged 72.

Book, O. S. W., Galesburg, Ill.; Dental Department, Baltimore Medical College, 1902; died July 18.

Bowman, R. O., Berea, Ky.; School of Dentistry, University of Louisville, 1925; died June 20.

Bradin, Benjamin, Swedesboro, N. J.; died June 15; aged 45.

Brown, Lewis, Denver; School of Dentistry, University of Denver, 1924; died June 25; aged 47.

Burnham, J. Fletcher, Gloucester, Mass.; Dental School, Tufts College, 1911; died June 17; aged 62.

Bush, Edward M., Rossville, Ill.; School of Dentistry, Indiana University, 1902; died July 8; aged 70.

Campbell, James A., Humboldt, Kan.; College of Dentistry, University of Illinois, 1905; died June 30; aged 65.

Carpenter, William H., Providence, R. I.; died July 6; aged 81.

Carrabine, Oscar, Larchmont, N. Y.; Dental School, Northwestern University, 1898; died July 16; aged 71.

Chambers, Alfred P., Toledo, Ohio; Ohio College of Dental Surgery, Dental Department of the University of Cincinnati, 1895; died July 2; aged 78.

Childs, William J., Columbus, Ohio; Southern Dental College, 1916; died June 13; aged 55.

Clark, Raymond K., Summit, N. J.; died July 3; aged 52.

Clusman, H. Louis, Chicago; Chicago College of Dental Surgery, Dental Department of Loyola University, 1886; died July 18; aged 81.

Cole, John P., Scarsdale, N. Y.; New York College of Dentistry, 1900; died July 9; aged 67.

Deering, Ralph A., Seattle; School of Dentistry, North Pacific College of Oregon, 1924; died July 3; aged 48.

Dunbar, O. S., Campbellsville, Ky.; School of Dentistry, University of Louisville, 1897; died July 8; aged 83.

Eriksen, Godfrey, New York; College of Dental and Oral Surgery of New York, 1913; died July 10; aged 59.

Ferries, Charles T., Houghton, Mich.; College of Dental Surgery, University of Michigan, 1903; died June 24; aged 67.

Ford, Lewis E., Los Angeles; Chicago College of Dental Surgery, 1892; died June 13; aged 75.

Fowler, John C., Baltimore; Baltimore College of Dental Surgery, 1919; died July 10.

Frantz, Charles M., Philadelphia; Department of Dentistry, Medico-Chirurgical College of Philadelphia, 1899; died July 5; aged 75.

Gibson, Carrie M., Wichita Falls, Texas; died June 21; aged 76.

Girden, Kenneth, Long Island, N. Y.; died July 18; aged 52.

Goode, Joseph, Indianapolis; School of Dentistry, Indiana University, 1897; died July 1; aged 74.

Grogan, Thomas F., Watertown, Mass.; died June 20; aged 68.

Hoge, Kentworthy M., Sr., Massillon, Ohio; Ohio College of Dental Surgery, Dental Department of the University of Cincinnati, 1904; died June 18.

Hudson, Burleigh H., Idaho Falls, Idaho; Chicago College of Dental Surgery, Dental Department of Loyola University, 1915; died June 14; aged 59.

Hults, A. Porter, Lawrence, Kan.; Kansas City Dental College, 1897; died June 20; aged 72.

Kirk, John J., Akron, Ohio; died July 5; aged 61.

Koontz, Arthur L., New Martinsville, W. Va.; School of Dentistry, Temple University, 1901; died July 1.

Krause, Eugene K., Philadelphia; Thomas W. Evans Museum and Dental Institute School of Dentistry, University of Pennsylvania, 1909; died July 6.

Leeschutz, Samuel, Rockaway Beach, N. Y.; died June 21; aged 69.

Lentz, Charles W., New Martinsville, W. Va.; died June 15; aged 66.

DIRECTORY

Officers

H. B. Washburn, President.....Lowry Bldg., St. Paul, Minn.
Clyde E. Minges, President-Elect.....Peoples Bank Bldg., Rocky Mount, N. C.
Philip E. Adams, First Vice-President.....106 Marlborough St., Boston, Mass.
Fred A. Richmond, Second Vice-President.....Huron Bldg., Kansas City, Kan.
A. M. Smith, Jr., Third Vice-President.....Stovall Bldg., Tampa, Fla.
Harold Hillenbrand, Secretary.....222 E. Superior St., Chicago, Ill.
R. H. Volland, Treasurer.....First National Bank Bldg., Iowa City, Iowa

Board of Trustees

LeRoy M. Ennis, 1950, Third District.....4001 Spruce St., Philadelphia, Pa.
Harold W. Oppice, 1950, Eighth District.....1002 W. Wilson Ave., Chicago, Ill.
O. H. Moen, 1950, Ninth District.....Watertown, Wis.
Daniel F. Lynch, 1950, Fourth District.....1678 Primrose Road, N. W., Washington, D. C.
J. E. John, Sr., Fifth District.....804 Medical Arts Bldg., Roanoke, Va.
J. B. Carr, 1949, Seventh District.....Hume Mansur Bldg., Indianapolis, Ind.
C. S. Foster, 1949, Tenth District.....Dows Bldg., Cedar Rapids, Iowa
Robert P. Thomas, 1949, Sixth District.....Francis Bldg., Louisville, Ky.
Henry Hicks, 1949, First District.....5 Glen Court, Greenwich, Conn.
William McGill Burns, 1948, Second District.....80 Hanson Place, Brooklyn, N. Y.
Willard Ogle, 1948, Twelfth District.....Medical Arts Bldg., Dallas, Texas
Fred S. Shandley, 1948, Eleventh District.....Medical & Dental Bldg., Seattle, Wash.
R. C. Dalgleish, 1948, Thirteenth District.....124 State Capitol, Salt Lake City, Utah

Bureaus

Chemistry: Donald A. Wallace, Director, and J. Roy Doty, Senior Chemist, 222 E. Superior St., Chicago, Ill.

Library and Indexing Service: Josephine P. Hunt, Librarian, and Martha A. Mann, Indexer, 222 E. Superior St., Chicago, Ill.

Public Information: Herbert B. Bain, Director, 222 E. Superior St., Chicago, Ill.

Section Chairmen

Dentistry for Children and Oral Hygiene: Kenneth A. Easlick, University of Michigan, Ann Arbor, Mich.

Full Denture Prosthesis: W. W. Hurst, 2165 Adelbert Road, Cleveland, Ohio.

Histology, Physiology, Pathology, Bacteriology and Chemistry (Research): Hermann Becks, University of California, San Francisco, Calif.

Hospital Dental Service: W. Harry Archer, 804 Professional Bldg., Pittsburgh, Pa.

Operative Dentistry, Materia Medica and Therapeutics: J. Bernard Hutcherson, Starks Bldg., Louisville, Ky.

Oral Surgery, Exodontia and Anesthesia: George W. Christiansen, David Whitney Bldg., Detroit, Mich.

Orthodontics: L. B. Higley, 705 S. Summit St., Iowa City, Iowa.

Partial Denture Prosthesis: Oliver C. Applegate, 216 S. State St., Ann Arbor, Mich.

Periodontia: Hunter S. Allen, Comer Bldg., Birmingham, Ala.

Practice Management: Gaylord J. James, 9400 Euclid Ave., Cleveland, Ohio.

Radiology: H. C. Fixott, Medical-Dental Bldg., Portland, Ore.

Standing Committees

American Red Cross: George A. Coleman, 15th and Locust Sts., Philadelphia, Pa.

Constitution and Administrative Bylaws: Percy T. Phillips, Chm., 18 E. 48th St., New York, N. Y.

Dental Education: J. Ben Robinson, Chm., 42 S. Greene St., Baltimore, Md.; Harlan H. Horner, Secy., and Shailer Peterson, Director of Educational Measurements, 222 E. Superior St., Chicago, Ill.

Dental Health: Hugo M. Kulstad, Chm., First National Bank Bldg., Pomona, Calif.; Allen O. Gruebbel, Secy., 222 E. Superior St., Chicago, Ill.
Dental Legislation: Carl O. Flagstad, Chm., Medical Arts Bldg., Minneapolis, Minn.; George H. Fox, Secy., 222 E. Superior St., Chicago, Ill.
Dental Museum: Henry A. Swanson, Chm., 1726 Eye St., N. W., Washington, D. C.
Dental Therapeutics: Harold S. Smith, Chm., 59 E. Madison St., Chicago, Ill.; Donald A. Wallace, Secy., 222 E. Superior St., Chicago, Ill.
Economics: Leslie M. FitzGerald, Chm., Roshek Bldg., Dubuque, Iowa; J. E. Bagdonas, Secy., 222 E. Superior St., Chicago, Ill.
History: Harold L. Faggart, Chm., 2120 Pine St., Philadelphia, Pa.
Insurance: A. D. Weakley, Chm., 1726 Eye St., N. W., Washington, D. C.; Fred A. Richmond, Secy., Huron Bldg., Kansas City, Kan.
International Relations: Daniel F. Lynch, Chm., 1678 Primrose Road, N. W., Washington, D. C.
Judicial Council: Ernest G. Sloman, Chm., 344-14th St., San Francisco, Calif.
Library and Indexing Service: John E. Gurley, Chm., 350 Post St., San Francisco, Calif.
Membership: Paul W. Zillmann, Chm., 29 Walden Ave., Buffalo, N. Y.
Motion Pictures: Cecil C. Connelly, Chm., 4660 Maryland Ave., St. Louis, Mo.
National Board of Dental Examiners: James V. Gentilly, Chm., Rose Bldg., Cleveland, Ohio; Gordon L. Teall, Secy., Hiawatha, Kan.
Nomenclature: Harry Lyons, Chm., Professional Bldg., Richmond, Va.
Patents and Honorary Awards: M. D. K. Bremner, Chm., 173 W. Madison St., Chicago, Ill.
Relief: John S. Owens, Chm., 407 Cooper St., Camden, N. J.; Earl E. Graham, Secy., 58 E. Washington St., Chicago, Ill.
Research: M. D. Huff, Chm., Medical Arts Bldg., Atlanta, Ga.; Daniel F. Lynch, Secy., 1678 Primrose Road, N. W., Washington, D. C.
Scientific and Health Exhibits: Leo F. Marré, Chm., Paul Brown Bldg., St. Louis, Mo.; Lon W. Morrey, Secy., 222 E. Superior St., Chicago, Ill.

Special Committees

Dental and Medical Relations: C. Raymond Wells, Chm., 1 DeKalb Ave., Brooklyn, N. Y.
Gorgas Memorial: Russell W. Bunting, Chm., 916 Church St., Ann Arbor, Mich.
Horace Wells Centenary: Eugene M. Clifford, Chm., 57 Pratt St., Hartford, Conn.
Hospital Dental Service: W. Harry Archer, Chm., Professional Bldg., Pittsburgh, Pa.
Military Affairs: Olin Kirkland, Chm., Shepherd Bldg., Montgomery, Ala.
Prosthetic Dental Service: H. O. Lineberger, Chm., Professional Bldg., Raleigh, N. C.; Carl O. Boucher, Secy., Beggs Bldg., Columbus, Ohio.
Trade Relations: Frank J. Hurlstone, Chm., 30 N. Michigan Ave., Chicago, Ill.
War Memorial: L. H. Renfrow, Chm., Selective Service, 21st and C Sts., N.W., Washington, D. C.
William T. G. Morton Centenary: Kurt H. Thoma, Chm., 53 Bay State Road, Boston, Mass.
Woman's Auxiliary: Stella Risser, Medical Arts Bldg., Houston, Texas.

THE JOURNAL OF THE AMERICAN DENTAL ASSOCIATION
222 East Superior Street, Chicago 11, Illinois
WHItehall 6730 Cable Address: ADAECO

Lon W. Morrey, Editor **John J. Hollister, Business Manager**

All expressions of opinions and all statements of supposed facts are published on the authority of the writer over whose signature they appear, and are not to be regarded as expressing the views of the American Dental Association, unless such statements or opinions have been adopted by the Association. *Articles* are accepted with the understanding that they have not been published previously and that they are submitted solely to THE JOURNAL. *Advertising:* All products coming within the scope of the Council on Dental Therapeutics of the American Dental Association must be acceptable to the Council in order to be advertised in THE JOURNAL. Subscription is included in the annual membership dues of the American Dental Association. The subscription rate is $7 a year payable in advance for domestic subscriptions and $8 a year for foreign subscriptions. *Notice of change of address* should be received one month before the change is to be effective.

ANNOUNCEMENTS

MEETINGS OF STATE SOCIETIES

State	Date	City	Secretary	Address
Alabama	April 15–17, 1948	Birmingham	G. W. Matthews	1922 Tenth Ave., S., Birmingham 5
Arizona			B. K. Litt	68 E. Congress, Tucson
Arkansas			I. M. Sternberg	Merchants Bank Bldg., Ft. Smith
California			L. E. Linehan	450 Sutter St., San Francisco
S. California	Sept. 15–17	Los Angeles	M. E. Ralston	903 Crenshaw Bldg., Los Angeles 6
Colorado			R. A. Downs	724 Republic Bldg., Denver 2
Connecticut			E. S. Arnold	37 Linnard Rd., W. Hartford
Delaware			J. Krygier	309 S. State St., Dover
D. of Columbia			K. H. Wood	202-1835 Eye St., N.W., Washington
Florida	Nov. 10–12	St. Petersburg	J. I. Todd	433 St. James Bldg., Jacksonville
Georgia	Oct. 19–22	Atlanta	J. M. Heard, Jr.	Persons Bldg., Macon
Hawaii	Oct. 30–Nov. 1	Honolulu	J. H. Dawe	P. O. Box 39, Honolulu 10
Idaho			R. Sutcliff	Twin Falls
Illinois	Oct. 9–11	Peoria	P. W. Clopper	623 Jefferson Bldg., Peoria 2
Indiana			E. E. Ewbank	Kingman
Iowa			A. N. Humiston	417 Higley Bldg., Cedar Rapids
Kansas			F. A. Richmond	1008 Huron Bldg., Kansas City
Kentucky			J. L. Walker	640 Barbee Way, S., Louisville
Louisiana	April 8-10, 1948	Alexandria	J. S. Bernhard	407 Medical Arts Bldg., Shreveport
Maine			A. H. Garcelon	State House, Augusta
Maryland	April 29–May 1, 1948	Baltimore	J. H. Shackelford	706 Baltimore Life Bldg., Baltimore 1
Massachusetts	May 3–6, 1948	Boston	P. E. Adams	227 Commonwealth Ave., Boston 16
Michigan	April 12–14, 1948	Detroit	F. Wertheimer	Michigan Department of Health, Lansing
Minnesota	Feb. 23–25, 1948	St. Paul	L. M. Cruttenden	Lowry Medical Arts Bldg., St. Paul
Mississippi			F. C. Sneed	Onyka
Missouri			C. W. Digges	Exchange National Bank Bldg., Columbia
Montana			C. S. Renouard	305 Phoenix Bldg., Butte
Nebraska			F. A. Pierson	Federal Securities Bldg., Lincoln
Nevada			L. G. Jacob	505 Chestnut St., Reno
New Hampshire			F. E. Williams	814 Elm St., Manchester
New Jersey	April 20–23, 1948	Atlantic City	J. G. Carr	407 Cooper St., Camden
New Mexico			J. S. Eilar	First National Bank Bldg., Albuquerque
New York	May 10–13, 1948	Syracuse	C. A. Wilkie	1 Hanson Place, Brooklyn
North Carolina	April 26–28, 1948	Asheville	C. W. Sanders	Benson
North Dakota			K. G. Allen	Fargo
Ohio	Nov. 9–12	Cleveland	E. G. Jones	185 E. State St., Columbus
Oklahoma			E. W. Wise	Medical Arts Bldg., Tulsa
Oregon			W. H. Hurley	922 Selling Bldg., Portland 5
Panama Canal Z.			T. W. Cagle	Box 243, Cocoli
Pennsylvania	May 11–13, 1948	Atlantic City, N. J.	E. R. Aston	421 Market St., Kingston
Philippine I.			G. A. Carreon	9 Broadway, Third St., N. Manila
Puerto Rico			R. Miranda	Box 747, Rio Piedras
Rhode Island			S. Ozarin	172 Tames St., Newport
South Carolina			J. R. Owings	201 E. North St., Greenville
South Dakota	May 9–11, 1948	Sioux Falls	E. W. Elmen	Sioux Falls
Tennessee	May 24–27, 1948	Memphis	E. J. Justis	Exchange Bldg., Memphis
Texas	April 12–15, 1948	Fort Worth	W. Ogle	313 Medical Arts Bldg., Dallas
Utah			S. Ballinger	1001 Tribune-Telegram Bldg., Salt Lake City
Vermont			J. A. Larrow	Middlebury
Virginia			J. E. John	804 Medical Arts Bldg., Roanoke
Washington	Jan. 29–31, 1948	Seattle	F. J. Dingler	1502 Medical & Dental Bldg., Seattle 1
West Virginia			C. J. Gavelda	Clarksburg
Wisconsin	March 30–April 1, 1948	Milwaukee	R. A. Mason	964 N. 27th St., Milwaukee
Wyoming			J. D. McNiff	208 Grand Ave., Laramie

MEETINGS OF STATE BOARDS OF DENTAL EXAMINERS

State	Date	City	Secretary	Address
Arizona	Oct. 1–4		R. K. Trueblood	25 N. Second Ave., Glendale
Connecticut	Nov. 18-22	Hartford	C. G. Brooks	302 State St., New London
Indiana	Nov. 3–6		C. A. Frech	Gary National Bank Bldg., Gary
Kentucky	Sept. 22–25	Louisville	R. I. Todd	Western Union Bldg., Richmond
Ohio	Oct. 13–18	Columbus	E. D. Lowry	79 E. State St., Columbus
Wisconsin	Feb. 9–13, 1948	Milwaukee	S. F. Donovan	Tomah

OTHER MEETINGS

Name	Date	City	Secy. or Chm.	Address
American Academy of Applied Nutrition, Twelfth Annual Meeting	Oct. 4–5	Del Mar, Calif.	A. G. James Secy.	409 N. Camden Drive, Beverly Hills, Calif.
American Anti-Arthritis Association	Oct. 4–5	Del Mar, Calif.	R. T. Pottenger Secy.	Monrovia, Calif.
American Board of Oral Surgery	Nov. 7–8*	Chicago	L. M. FitzGerald Secy.	718 Roshek Bldg., Dubuque, Iowa
American Dental Society of Europe	July 27–30, 1948	London	K. C. Campbell Secy.	88 Portland Place, London, W. 1.
American Public Health Association, Seventy-Fifth Annual Meeting	Oct. 6	Atlantic City, N. J.	R. M. Atwater Secy.	1790 Broadway, New York 19
American Society for the Advancement of General Anesthesia in Dentistry	Oct. 27	New York	M. H. Feldman Secy.	730 Fifth Ave., New York
National Board of Dental Examiners	Dec. 1–2†		G. L. Teall Secy.	Box 71, Hiawatha, Kan.
Federacion Odontologica Latino Americana, Fifth Congress	Oct. 3	Buenos Aires	D. M. Cohen Secy.	Calle Junin No. 959, Buenos Aires, Argentina
Annual Seminar for the Study and Practice of Dental Medicine	Oct. 19–24	Yosemite Valley, Calif.	M. G. Lewis Secy.	1618 Ninth Ave., San Francisco 22
Montreal Dental Club, Twenty-Third Annual Fall Clinic	Oct. 22–24	Montreal	M. L. Donigan Director	Drummond Medical Bldg., 1414 Drummond St., Montreal 2, Canada
Denver Dental Association, Forty-First Annual Mid-Winter Meeting	Jan. 11–14, 1948	Denver	K. F. Grove Chm.	1325 E. 16th Ave., Denver
New England Dental Society	Nov. 5–6	Boston	J. F. Barton Secy.	43 Farmington Ave., Hartford 5, Conn.
Midcontinent Dental Congress, Seventh Annual Meeting	Dec. 13	St. Louis	V. H. Frederich Secy.	Arcade Bldg., St. Louis
University of Buffalo, School of Dentistry, Alumni Association, Forty-Fifth Annual Meeting	Oct. 14–16	Buffalo	E. L. Ruffing Chm. Publicity	233 W. Ferry St., Buffalo 13
Greater New York Dental Meeting	Dec. 8–12	New York	K. N. Donally Publicity Chm.	Room 106A, Hotel Pennsylvania, New York 1
Northeastern Society of Orthodontists	Nov. 10–11	New York	O. Jacobson Secy.	35 W. 81st St., New York
University of Oregon, Annual Dental School Alumni Meeting	Sept. 25–27	Portland	R. B. Keller Secy.	Medical-Dental Bldg., Portland, Ore.
Odontological Society of Western Pennsylvania, Sixty-Sixth Annual Meeting	Oct. 28–30	Pittsburgh	W. E. Craig Secy.	Jenkins Bldg., Pittsburgh 22

*Examinations for certification.
†Examinations will be held in schools where there are five or more candidates.

INTERNSHIPS, EXTERNSHIPS, RESIDENCIES AND FELLOWSHIPS

Boston City Hospital, Boston. Oral Surgeon-in-Chief, Stephen P. Mallett.

The Children's and Infants' Hospital (a Unit) of Boston. Address Paul K. Losch, 300 Longwood Ave., Boston.

The Children's Memorial Hospital, Chicago. Administrator, Mabel W. Binner, 707 Fullerton Ave., Chicago.

City Memorial Hospital, Winston-Salem, N. C. Superintendent, J. B. Whittington.

Columbia University, School of Dental and Oral Surgery. Associate Dean, Bion R. East, 630 W. 168th St., New York 32.

Delaware Hospital, Inc., Wilmington. Medical Director, Delaware Hospital, 501 W. Fourteenth St., Wilmington 13.

Eastman Dental Dispensary, Rochester, N. Y.

Fellowships for Research and Graduate Work in the Dental Sciences, University of Rochester. Dean, George H. Whipple.

The Forsyth Dental Infirmary for Children. Director, Percy R. Howe, 140 The Fenway, Boston.

International Grenfell Association. Staff Selection Committee, 156 Fifth Ave., New York.

Jewish Sanitarium and Hospital for Chronic Diseases. Director, Leonard Kohn, Dental Division, E. Forth-Ninth St. and Rutland Road, Brooklyn 3, N. Y.

Joseph Samuels Dental Clinic of the Rhode Island Hospital, Providence .

New York Foundling, New York. Medical Director, Alfred J. Vignec, 175 E. Sixty-Eighth St., New York.

Notre Dame Bay Memorial Hospital, Twillingate, Newfoundland. Address John M. Konopka, 25 W. Independence St., Shamokin, Pa.

Richmond Freeman Memorial Clinic for Infants and Children, Dallas, Texas. Executive Director, Dora B. Foster, 3617 Maple Ave., Dallas.

University of California, College of Dentistry, San Francisco. Dean W. C. Fleming, University of California, Medical Center, San Francisco.

University of Illinois, Graduate School. Fellowships for Research and Graduate Work. Secretary, Committee on Graduate Work in Medicine, Dentistry and Pharmacy, 1853 W. Polk St., Chicago 12.

University of Illinois, Research and Educational Hospital, Chicago. Supervisor of Hospital Dental Services, Maury Massler, University of Illinois, 808 S. Wood St., Chicago 12.

University of Oregon, Medical School and Hospitals, Portland. Administrator, Charles N. Holman, 3181 S. W. Marquam Hill Road, Portland.

Walter G. Zoller Memorial Dental Clinic, University of Chicago. Director, J. R. Blayney, 950 E. Fifth-Ninth St., Chicago 37